GODAVARI INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Approved by AICTE, Accredited by NBA & NAAC 'A' Grade, Recognized under 2(f) and 12(b) of UGC, Permanently Affiliated to JNTUK, Kakinada.

Chaitanya Knowledge City, Rajanagaram, Rajamahendravaram – 533294. E.G.Dt. - AP.

DEPARTMENT OF AUTOMOBILE ENGINEERING

1st YEAR B.Tech. COURSE STRUCTURE & SYLLABUS

With Effective from 2014-15 Batch

NBA ACCREDITED & NAAC 'A' GRADE

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B.Tech. Automobile Engineering

COURSE STRUCTURE

I YEAR **4+0+0+0+0 (T+P+D+ACC+NCC)** **I SEMESTER**

S. No.	Subject		Periods per week			C	Scheme of Examination Maximum Marks		
	Name	Code	T	P	D		Internal	External	Total
1	English – I	14198101	4	-	-	3	30	70	100
2	Mathematics - I	14198102	4	-	-	3	30	70	100
3	Mathematics – II (Mathematical Methods)	14198103	4	-	-	3	30	70	100
4	Engineering Physics	14198104	4	-	-	3	30	70	100
5	Computer Programming	14198105	4	-	-	3	30	70	100
6	Environmental Studies	14198106	4	-	-	3	30	70	100
7	English Communication Skills Lab-1	14198111	-	3	-	2	50	50	100
8	Engineering Physics Lab. (Engineering Physics Virtual lab assignments)	14198112	-	3	-	2	50	50	100
9	C- Programming Lab	14198113	-	3	-	2	50	50	100
	Total		**24**	**9**	**-**	**24**	**-**	**-**	**900**

I YEAR **4+0+0+0+0 (T+P+D+ACC+NCC)** **II SEMESTER**

S. No.	Subject		Periods per week			C	Scheme of Examination Maximum Marks		
	Name	Code	T	P	D		Internal	External	Total
1	English – II	14198201	4	-	-	3	30	70	100
2	Mathematics – III	14198202	4	-	-	3	30	70	100
3	Engineering Chemistry	14198203	4	-	-	3	30	70	100
4	Engineering Mechanics	14198204	4	-	-	3	30	70	100
5	Engineering Drawing	14198275	1	-	3	3	30	70	100
6	Professional Ethics and Human Values*	14198296	4	-	-	-	-	-	-
7	English Communication Skills Lab – 2	14198211	-	3	-	2	50	50	100
8	Engineering Chemistry Lab	14198212	-	3	-	2	50	50	100
9	Engineering Workshop & IT Workshop	14198213	-	3	-	2	50	50	100
	Total		**21**	**9**	**3**	**21**	-	-	**800**

T : Theory P: Practical D: Drawing C: Credits
ACC : Additional Credit Course NCC: Non Credit Course

*Professional Ethics & Human Values is an Audit Course / add on course with internal assessment only, Pass at 40% is compulsory, No credit/Marks. Result shown as Satisfactory / Not Satisfactory.

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B.Tech., Automobile Engineering **With effective from 2014-15 Batch**

B. Tech. I Year – I Sem.

ENGLISH -I [14198101]

(Common to all branches)

Course Outcomes: At the end of the semester the student will be able to

- Understand doing self introspection and self vigilance
- Achieve high quality of life, strength and sovereignty of a developed nation
- Understand the importance of writing skills and its techniques
- Envision the dangers of scientific and technological innovations
- Improve the exposure to universal happenings
- Communicate the necessity to exercise humour in the daily life

DETAILED TEXT-I **English Essentials : Recommended Topics :**

1. IN LONDON: M.K.GANDHI

OBJECTIVE: To apprise the learner how Gandhi spent a period of three years in London as a student.

2. THE KNOWLEDGE SOCIETY- APJ KALAM

OBJECTIVE: To make the learners rediscover India as a land of Knowledge.

3. THE SCIENTIFIC POINT OF VIEW- J.B.S. HALDANE

OBJECTIVE: This essay discusses how scientific point of view seeks to arrive at the truth without being biased by emotion.

4. PRINCIPLES OF GOOD WRITING:

OBJECTIVE: To inform the learners how to write clearly and logically.

5. MAN'S PERIL

OBJECTIVE: To inform the learner that all men are in peril.

6. THE DYING SUN—SIR JAMES JEANS

OBJECTIVE: This excerpt from the book "The Mysterious Universe" presents the mysterious nature of the Universe and the stars which present numerous problems to the scientific mind. Sir James Jeans uses a poetic approach to discuss the scientific phenomena.

7. LUCK—MARK TWAIN

OBJECTIVE: This is a short story about a man's public image and his true nature. The theme of the story is that luck can be a factor of life, so that even if one is incompetent but lucky, one can still succeed.

Prescribed Text Book : "English Essentials", by Ravindra Publications

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B. Tech. I Year – I Sem.

ENGLISH ***(Common to all branches)***

Course outcomes: At the end of the semester the student will be able to

- **Take inspiration by reading autobiographies**
- **Help the common man and achieve the social cause**
- **Aspire for the useful innovations to improve living**
- **Achieve the target without compromise**

NON-DETAILED TEXT:

(From Modern Trailblazers of Orient Blackswan)
(Common single Text book for two semesters)
(Semester I (1 to 4 lessons)/ Semester II (5 to 8 lessons)

1. G.D.Naidu

OBJECTIVE: To inspire the learners by G.D.Naidu‟s example of inventions and contributions.

2. G.R.Gopinath

OBJECTIVE: To inspire the learners by his example of inventions.

3. Sudhamurthy

OBJECTIVE: To inspire the learners by the unique interests and contributions of Sudha Murthy.

4. Vijay Bhatkar

OBJECTIVE: To inspire the learner by his work and studies in different fields of engineering and science.

Text Book : "Trail Blazers" by Orient Black Swan Pvt. Ltd. Publishers

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B. Tech. I Year – I Sem.

MATHEMATICS – I(DIFFERENTIAL EQUATIONS) [14198102]
(Common to all branches)

Course Outcomes: At the end of the course the student will be able to

- Solve first and higher order ordinary differential equations (ODE) with applications by various techniques
- Apply Laplace Transforms to solve initial value problems and evaluate infinite integrals
- Apply partial differentiation to solve inequalities and to find Maxima and Minima
- Solve First and higher order PDE with their applications to heat equation, Wave equation, Laplace equation

UNIT I: Differential equations of first order and first degree:
Objective: Solution of First order and First degree ODE with applications
Linear-Bernoulli-Exact-Reducible to exact.
Applications : Newton‟s Law of cooling-Law of natural growth and decay-orthogonal trajectories.

UNIT II: Linear differential equations of higher order:
Objective: Solution of Higher order Linear ODE with applications.
Non-homogeneous equations of higher order with constant coefficients with RHS term of the type e *ax* , Sin ax, cos ax, polynomials in x, e *ax* V(x), xV(x).
Applications: LCR circuit, Simple Harmonic motion.

UNIT III Laplace transforms:
Objective: Application of Laplace Transform to solution of IVP and Evaluation of Integrals.
Laplace transforms of standard functions-ShiftingTheorems, Transforms of derivatives and integrals – Unit step function –Dirac‟s delta function- Inverse Laplace transforms– Convolution theorem (with out proof).
Applications: Solutions of ordinary differential equations using Laplace transforms.

UNIT IV Partial differentiation:
Objective: Mean value theorems and their applications to solve inequalities and Maxima and Minima.
Introduction- Total derivative-Chain rule-Generalized Mean Value theorem for single variable (without proof)-Taylors and Mc Laurent‟s series for two variables– Functional dependence-Jacobian.
Applications: Maxima and Minima of functions of two variables with constraints and without constraints.

UNIT V First order Partial differential equations:
Objective: Formation and solution of First Order PDE
Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard type) equations.

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UNIT VI Higher order Partial differential equations:

Objective: Solution and application of higher order PDE

Solutions of Linear Partial differential equations with constant coefficients- Method of separation of Variables

Applications: One- dimensional Wave, Heat equations - two-dimensional Laplace Equation.

Books:

1. **B.S.GREWAL,** Higher Engineering Mathematics, 42nd Edition, Khanna Publishers
2. **ERWIN KREYSZIG,** Advanced Engineering Mathematics, 9th Edition, Wiley-India
3. **GREENBERG,** Advanced Engineering Mathematics, 2nd edition, Pearson edn
4. **DEAN G. DUFFY,** Advanced engineering mathematics with MATLAB, CRC Press
5. **PETER O'NEIL,** advanced Engineering Mathematics, Cengage Learning.

Web links:

1. NPTEL – Courses from reputed IIT's as available in the websites.
2. WEBEX
3. COURSERA

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I Year B.Tech – I Semester

MATHEMATICS –II (Numerical Methods and Integral Transforms) [14198103]
(Common to AME, CE, ME, MM)

Course Outcome: At the end of the course the student will be able to

- **Apply Numerical Techniques to solve Algebraic and Transcendental Equations and also Initial Value problems and ODE**
- **To interpolate the tabulated data at the given values using various interpolation techniques**
- **Express a given function satisfying certain conditions in Fourier series**
- **Use finite and infinite Fourier integral transforms to solve BVPs**
- **Solve Difference Equations using Z-Tranforms**

UNIT I: Solution of Algebraic and Transcendental Equations
Objectives: To enable the student to solve algebraic and Transcendental equations by Numerical Methods.
Introduction- Bisection Method – Method of False Position – Iteration Method – Newton-Raphson Method.

UNIT II: Interpolation
Objective: To enable the student to use interpolation techniques for a given tabulated data
Introduction- Errors in Polynomial Interpolation – Finite differences- Forward Differences-Backward differences –Central differences – Symbolic relations and separation of symbols-Differences of a polynomial-Newton‟s formulae for interpolation – Interpolation with unevenly spaced points - Lagrange‟s Interpolation formula

UNIT III: Numerical solution of Ordinary Differential equations
Objective: To enable the student to use Numerical Techniques to solve IVP's in ODE.
Solution by Taylor‟s series-Picard‟s Method of successive Approximations-Euler‟s Method-Runge-Kutta Methods

UNIT IV: Fourier Series
Objective: To enable the student to expand a function in Fourier series
Introduction- Determination of Fourier coefficients – even and odd functions –change of interval– Half-range sine and cosine series
application: Amplitude, spectrum of a periodic function

UNIT V: Fourier Transforms
Objective: To enable the student to use Fourier Integral theorem and transforms to BVP's
Fourier integral theorem (only statement) – Fourier sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms

UNIT VI: Z-transform
Objective: To enable the student to use Z-Transform to solve Difference Equations.
Introduction– properties – Damping rule – Shifting rule – Initial and final value theorems - Inverse z transform- -Convolution theorem – Solution of difference equation by Z -transforms.

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REFERENCE BOOKS:

1. **B.S. GREWAL,** Higher Engineering Mathematics, 42nd Edition, Khanna Publishers
2. **DEAN G. DUFFY,** Advanced Engineering Mathematics with MATLAB, CRC Press
3. **V.RAVINDRANATH and P. VIJAYALAXMI,** Mathematical Methods, Himalaya Publishing House
4. **ERWYN KREYSZIG,** Advanced Engineering Mathematics, 9th Edition, Wiley-India

Web links:

1. NPTEL – Courses from reputed IIT's as available in the websites.
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I Year B.Tech – I Semester

ENGINEERING PHYSICS [14198104]

(Common to AME, CE, ME and MINING Engineering)

UNIT I: PHYSICAL OPTICS FOR INSTRUMENTS

Objective: *"Designing an instrument and enhancing the resolution for its operation would be effect as achieved through study of application aspects of physical Optics"*

INTERFERENCE: Introduction – Interference in thin films by reflection – Newton‟s rings.
DIFFRACTION: Introduction – Fraunhofer diffraction – Fraunhofer diffraction at double slit (qualitative)–Diffraction grating–Grating spectrum–Resolving power of a grating Rayleigh's criterion for resolving power.
POLARIZATION: Introduction – Types of Polarization – Double refraction – Quarter wave plate and Half Wave plate.

UNIT II: COHERENT OPTICS – COMMUNICATIONS AND STRUCTURE OF MATERIALS

Objective*: "Lasers are trusted Non-linear coherent sources establishing for the fitness of Instrumentation, establishing a structure property relationship for materials requires allotment of an equivalent footing in convening the physics knowledge base".*

LASERS: Introduction – coherent sources – Characteristics of lasers – Spontaneous and Stimulated emission of radiation – Einstein's coefficients – Population inversion – Three and Four level pumping
schemes – Ruby laser – Helium Neon laser.
CRYSTALLOGRAPHY: Introduction – Space lattice – Basis – Unit Cell – Lattice parameters –Bravais lattices – Crystal systems – Structures and packing fractions of SC,BCC and FCC
X-RAY DIFRACTION TECHNIQUES: Directions and planes in crystals – Miller indices – Separation between successive (h k l) planes – Bragg's law.
FIBER OPTICS: Introduction – Principle of wave propagation in Optical Fiber – Acceptance angle and acceptance cone- Numerical aperture.

UNIT III: MAGNETIC, ELECTRIC FIELD RESPONSE OF MATERIALS & SUPERCONDUCTIVITY

Objective: *"Many of the Electrical or Electronic gadgets are designed basing on the response of naturally abundant and artificially made materials, while their response to E- or H- fields controls their performance".*

MAGNETIC PROPERTIES: Magnetic permeability – Magnetization – Organ or magnetic moment– Classification of Magnetic materials – Dia, para, Ferro,anti ferro and ferri-magnetism Hysteresis curve.
DIELECTRIC PROPERTIES: Introduction – Dielectric constant – Electronic, ionic and orientational polarization – internal fields – Clausius – Mossotti equation –
Dielectric loss, Breakdown and Strength.
SUPERCONDUCTIVITY: General properties – Meissner effect – Type I and Type II superconductors–BCS Theory Flux quantization London‟s equations – Penetration depth-DC and AC Josephson effects–SQUIDS.

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UNIT IV: ACOUSTICS AND EM – FIELDS

Objective: "*The utility and nuances of ever pervading SHM and its consequences would be the first handonto as it clearly conveyed through the detailed studies of Acoustics of Buildings, while vectorial concepts of EM fields paves the student to gear – up for a deeper understanding".*

ACOUSTICS: Sound absorption, absorption coefficient and its measurements, Reverberations time –Sabine's formula, Eyring's formula.

ELECTRO-MAGENTIC FIELDS: Gauss and stokes theorems (qualitative) – Fundamental laws of Electro magnetism – Maxwell's Electromagnetic Equations (Calculus approach).

UNIT V: QUANTUM MECHANICS FOR ELECTRONIC TRANSPORT

Objective: *"The discrepancy between classical estimates and laboratory observations of physical properties exhibited by materials would be lifted out through the understanding quantum picture of sub-atomic world dominated by electron and its presence".*

QUANTUM MECHANICS: Introduction to matter waves – Schrodinger Time Independent and Time Dependent wave equations – Particle in a box.

FREE ELECTRON THEORY: Classical free electron theory – electrical conductivity– Mean free path–Relaxation time and drifty velocity–Quantum free electron theory - Fermi-Dirac (analytical) and its dependence on temperature–Fermi energy–density of states– derivations for current density.

BAND THEORY OF SOLIDS: Bloch theorem (qualitative) – Kronig – Penney model – Origin of energy band formation in solids – Classification of materials into conductors, semi – conductors &insulators – Concepts of effective mass of electron - concept of hole.

UNIT VI: SEMICONDUCTOR PHYSICS

Objective: *"In the wake of ever increasing demand for the space and power the watch word "small is beautiful", understanding the physics of electronic transport as underlying mechanism for appliances would provide a knowledge base".*

Introduction to Semiconductors, Intrinsic semiconductor and carrier concentration – Equation for conductivity – Extrinsic semiconductor and carrier concentration – Drift and diffusion – Einstein's equation – Hall Effect – direct & indirect band gap semiconductors – Electronic transport Mechanism for LEDs, Photo conductors and solar cells.

TEXT BOOKS

1. Solid state Physics by A.J. Dekker (Mc Millan India Ltd)
2. A text book of Engineering Physics by M.N.Avadhanulu & P.G.Kshirasagar (S.Chand publications)
3. Engineering Physics by M.R. Srinivasan (New Age international publishers)

REFERENCE BOOKS

1. Introduction to solid state physics by Charles Kittle (Willey India Pvt.Ltd)
2. Applied Physics by T. Bhimasenkaram (BSP BH Publications)
3. Applied Physics by M.Arumugam (Anuradha Agencies)
4. Engineering Physics by Palanisamy (Scitech Publishers)
5. Engineering Physics by D.K.Bhattacharya (Oxford University press)
6. Engineering Physics by Mani Naidu S (Pearson Publications)
7. Engineering Physics by Sanjay D Jain and Girish G Sahasrabudhe (University Press)
8. Engineering Physics by B.K.Pandey & S. Chaturvedi (Cengage Learning)

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B.Tech., Automobile Engineering **With effective from 2014-15 Batch**

I Year B.Tech. – I Semester

COMPUTER PROGRAMMING [14198105]
(Common to ME, CE, AME, MIN)

Objective: Formulating algorithmic solutions to problems & implementing algorithms in C

UNIT I:

Objective: Notion of Operation of a CPU, Notion of an algorithm and computational procedure, editing and executing programs in Linux

Introduction: Computer systems, Hardware and Software Concepts**,**

Problem Solving: Algorithm / Pseudo code, flowchart, program development steps, computer languages: machine, symbolic and highlevel languages, Creating and Running Programs: Writing, Editing(vi/emacs editor), Compiling(gcc), Linking and Executing in under Linux.

BASICS OF C: Structure of a C program, identifiers, basic data types and sizes. Constants, Variables, Arthmetic , relational and logical operators, increment and decrement operators, conditional operator, assignment operator, expressions, type conversions, Conditional Expressions, precedence and order of evaluation, Sample Programs.

UNIT II:

objective: understanding branching, iteration and data representation using arrays

SELECTION – MAKING DECISION: TWO WAY SELECTION: If-else, null else, nested if, examples, Multiway selection: switch, else-if, examples**.**

ITERATIVE: loops- while, do-while and for statements, break, continue, initialization and updating, event and counter controlled loops, Looping applications: Summation, powers, smallest and largest.

ARRAYS: Arrays- concepts, declaration, definition, accessing elements, storing elements, Strings and String Manipulations, 1-D arrays, 2-D arrays and character arrays, string manipulations, Multidimensional arrays, array applications: Matrix operations, checking the symmetricity of a Matrix**.**

STRINGS: concepts, c strings.

UNIT III:

Objective: Modular programming and recursive solution formulation

FUNCTIONS- MODULAR PROGRAMMING: functions, basics, parameter passing, storage classes extern, auto, register, static, scope rules, block structure, user defined functions, standard library functions, recursive functions, Recursive solutions for fibonacci series, towers of Hanoi, header files, C Preprocessor, example c programs, Passing 1-D arrays, 2-D arrays to functions.

UNIT IV:

Objective: Understanding pointers and dynamic memory allocation

POINTERS: pointers- concepts, initialization of pointer variables, pointers and function arguments, passing by address- dangling memory, address arithmetic, character pointers and functions, pointers to pointers, pointers and multi-dimensional arrays, dynamic memory management functions, command line arguments

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UNIT V:
Objective: Understanding miscellaneous aspects of C
ENUMERATED, STRUCTURE AND UNION TYPES: Derived types- structures- declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bit-fields, program applications
BIT-WISE OPERATORS: logical, shift, rotation, masks**.**

UNIT VI:
Objective: Comprehension of file operations
FILE HANDLING: Input and output- concept of a file, text files and binary files, Formatted I/O, File I/O operations, example programs.

Text Books:
1. Problem Solving and Program Design in C, Hanly, Koffman, 7th ed, PERSON
2. Programming in C, Second Edition Pradip Dey and Manas Ghosh, OXFORD Higher Education
3. Programming in C, A practical approach Ajay Mittal PEARSON
4. The C programming Language by Dennis Richie and Brian Kernighan
5. Programming in C, B. L. Juneja, Anith Seth, Cengage Learning.

Reference Books and web links:
1. C Programming, A Problem Solving Approach, Forouzan, Gilberg, Prasad, CENGAGE
2. Programming with C, Bichkar, Universities Press
3. Programming in C, Reema Thareja, OXFORD
4. C by Example, Noel Kalicharan, Cambridge

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B. Tech. I Year – I Sem.

ENVIRONMENTAL STUDIES[14198106]

(Common to ME, CE, AME, MIN)

Course Learning Objectives:

The objectives of the course is to impart

1. Overall understanding of the natural resources

2. Basic understanding of the ecosystem and its diversity

3. Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities

4. An understanding of the environmental impact of developmental activities

5. Awareness on the social issues, environmental legislation and global treaties

Course Outcomes:

The student should have knowledge on

1. The natural resources and their importance for the sustenance of the life and recognise the need to conserve the natural resources.
2. The concepts of the ecosystem and its function in the environment. The need for protecting the producers and consumers in various ecosystems and their role in the food web.
3. The biodiversity of India and the threats to biodiversity, and conservation practices to protect the biodiversity.
4. Various attributes of the pollution and their impacts and measures to reduce or control the pollution along with waste management practices.
5. Social issues both rural and urban environment and the possible means to combat the challenges.
6. The environmental legislations of India and the first global initiatives towards sustainable development.
7. About environmental assessment and the stages involved in EIA and the environmental audit.

UNIT I:

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – **Sustainability: Stockholm and Rio Summit–Global Environmental Challenges:** Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health.

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features,structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT II:

Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity

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Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources.
Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT III:
Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation – Hot spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts. - Endangered and endemic species of India –
Conservation of biodiversity: conservation of biodiversity.

UNIT IV:
Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies.
Solid Waste Management: Sources, classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products.

UNIT V:
Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns.
Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.

UNIT VI:
Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism The student should submit a report individually on any issues related to Environmental Studies course and make a power point presentation.

TEXT BOOKS:
1. Environmental Studies by R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
2. A Textbook of Environmental Studies by Shaashi Chawla, TMH, New Delhi
3. Environmental Studies by P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai

REFERENCE BOOKS:
1. Text Book of Environmental Studies by Deeshita Dave & P. Udaya Bhaskar, Cengage Learning.
2. Environmental Studies by K.V.S.G. Murali Krishna, VGS Publishers, Vijayawada
3. Environmental Studies by Benny Joseph, Tata McGraw Hill Co, New Delhi
4. Environmental Studies by *Piyush Malaviya, Pratibha Singh, Anoop singh: Acme Learning,* New Delhi

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B.Tech., Automobile Engineering **With effective from 2014-15 Batch**

B. Tech., I Year – I Sem.

ENGLISH COMMUNICATION SKILLS LAB-1[14198111]

(Common to AME, CE, ME, MM)

Course Outcomes: At the end of the semester the student will be able to

- Communicate in different situations
- Improvise his ability to meet different industry needs
- Envisions his necessity to improve employability

Course Objectives:

- To motivate the students to accept global linguistic environment
- To refine social and psychological language inhibitions
- To make them industry ready
- To cultivate communicative competence

S. No.	UNIT	TOPIC
1	I	A:Greetings,introducing and taking leave B:Pure vowels
2	II	A:Giving Information and asking Information B: Diphthongs
3	III	A:Inviting,Accepting and Declining Invitations B:Consonants
4	IV	A:Commands,Instructions and Requests B:Accent and rhythm
5	V	A:Suggestions and Opinions B:Intonation

Suggested Text Book: Strengthen Your Communication Skills by Maruthi Publishing House

Suggested Software: English in Mind, Pronunciation Power by Hi-Class software solutions.

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B. Tech. I Year – I Sem.

Engineering Physics Lab (Engineering Physics Virtual lab assignments) [14198112]

1. Determination of wavelength of a source-Diffraction Grating-Normal incidence
2. Newton‟s rings –Radius of Curvature of Plano_Convex Lens.
3. Determination of thickness of a thin object using parallel interference fringes.
4. Determination of Rigidity modulus of a material- Torsional Pendulum.
5. Determination of Acceleration due to Gravity and Radius of Gyration- Compound Pendulum.
6. Melde‟s experiment – Transverse and Longitudinal modes.
7. Verification of laws of stretched string – Sonometer.
8. Determination of velocity of sound – Volume resonator.
9. L C R Senes Resonance Circuit
10. Study of I/V Characteristics of Semiconductor diode
11. I/V characteristics of Zener diode
12. Thermistor characteristics – Temperature Coefficient
13. Magnetic field along the axis of a current carrying coil – Stewart and Gee‟s apparatus.
14. Energy Band gap of a Semiconductor p-n junction.
15. Hall Effect for semiconductor.

Note: Assignment / Virtual Lab --- 5Marks
Virtual Lab URL:

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I Year B.Tech – I Semester

C - PROGRAMMING LAB [14198113]
(Common to ME,CE,AME,MIN)

Exercise l

a) Write a C Program to calculate the area of triangle using the formula
area = (s (s-a) (s-b)(s-c))1/2
where s= (a+b+c)/2
b) Write a C program to find the largest of three numbers using ternary operator.
c) Write a C Program to swap two numbers without using a temporary variable.

Exercise 2

a) 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2"s complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.
b) Write a C program to find the roots of a quadratic equation.
c) Write a C program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)

Exercise 3

a) Write a C program to find the sum of individual digits of a positive integer and find the reverse of the given number.
b) 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 C program to generate the first n terms of the sequenceUse the summing series method to compute the value of SIN(x),COS(x) and e^x
c) Write a C program to generate all the prime numbers between 1 and n, where n is a value Supplied by the user.

Exercise 4

a) Write a C Program to print the multiplication table of a given number n up to a given value, where n is entered by the user.
b) Write a C Program to enter a decimal number, and calculate and display the binary equivalent of that number.
c) Write a C Program to check whether the given number is Armstrong number or not.

Exercise 5

a) Write a C program to interchange the largest and smallest numbers in the array.
b) Write a C program to implement a liner search.
c) Write a C program to implement binary search.

Exercise 6

a) Write a C function to find both the largest and smallest number of an array of integers.
b) Write C programs illustrating call by value and call by reference concepts.

Exercise 7

a) Write a C program that uses functions to perform the following operations:
i. To insert a sub-string in to given main string from a given position.
ii. To delete n Characters from a given position in a given string.
b) To replace a character of string either from beginning or ending or at a specified location

Exercise 8

Write a C program that uses functions to perform the following operations using Structure:
i) Reading a complex number ii) Writing a complex number
iii) Addition of two complex numbers iv) Multiplication of two complex numbers

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Exercise 9

a) Write C Programs for the following string operations without using the built in functions

i. to concatenate two strings

ii. to append a string to another string

iii. to compare two strings.

Exercise 10

a) Write C Programs for the following string operations without using the built in functions

i. to find t he length of a string

ii. to find whether a given string is palindrome or not.

Exercise 11

a) Write C programs that use both recursive and non recursive functions for the following

i) To find the factorial of a given integer.

ii) To find the GCD of two given integers.

iii) To find Fibonacci sequence.

Exercise 12

a) Write C Program to reverse a string using pointers.

b) Write a C program to compare two arrays using pointers.

Exercise 13

a) Write a C Program consisting of pointer based function to exchange value of two integers using passing by address.

b) Write a C Program to swap two numbers using pointers.

Exercise 14

Examples which explores the use of structures, union and other user defined variables.

Exercise 15

a) Write a C program which copies one file to another.

b) Write a C program to count the number of Characters and number of lines in a file.

c) Write a C Program to merge two files into a third file. The names of the files must be entered using command line arguments.

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B. Tech. I Year – II Sem.

ENGLISH - II [14198201]

(Common to all branches)

Course Outcomes: At the end of the semester the student will be able to

- Understand the proposed technology is people's technology and its service to the humanity instead of making them servant of machines.
- Understand that climate must be preserved.
- Adopt the applications of modern technologies such as Nanotechnology.
- Understand the water is the elixir of life.
- Learn to work hard with devotion and dedication.
- Understand the advantages of work. They will overcome their personal problems and address themselves to National and other problems.

DETAILED STUDY:

UNIT-1: Technology with a human face

Objective: *"To make the learner understand how modern life has been shaped by technology."*

UNIT II: Climate change and human strategy

Objective: *"To make the learner understand how the unequal heating of earth's surface by the Sun, an atmospheric circulation pattern is developed and maintained."*

UNIT III: Emerging technologies

Objective: *"To introduce the technologies of the 20th century and 21st centuries to the learners".*

UNIT IV: Water- the elixir of life

Objective: "*To inform the learner of the various advantages and characteristics of water".*

UNIT V: The secret of work

Objective: *"In this lesson, Swami Vivekananda highlights the importance of work for any development".*

UNIT VI: Work brings solace

Objective: *"In this lesson Abdul Kalam highlights the advantage of work".*

PRESCRIBED TEXT BOOK: "Sure Outcomes" by Orient Black Swan Pvt. Ltd. Publishers

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NON-DETAILED TEXT:

Course Outcomes: At the end of the semester the student will be able to

- Be inspired by Bose's achievements so that he may start his own original work
- Be inspired by Bhabha's achievements so as to make his own experiments
- Realize that development is impossible without scientific research
- Appreciate the art of writing a short story and try his hand at it

UNIT V: J.C. Bose

Objective: *"To apprise of J.C.Bose's original contributions."*

UNIT VI: Homi jehangir bhaba

Objective: *"To show Bhabha as the originator of nuclear experiments in India*

UNIT VII: Vikram sarabhai

Objective: "*To inform the learner of the pioneering experiments conducted by Sarabhai in nuclear energy and relevance of space programmes"*.

UNIT VIII: A Shadow- R.K.Narayan

Objective: "*To expose the reader to the pleasure of the humorous story"*.

PRESCRIBED TEXT BOOK: "Trail Blazers" by Orient Black Swan Pvt. Ltd. Publishers

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B. Tech. I Year – II Sem.

MATHEMATICS –III (LINEAR ALGEBRA & VECTOR CALCULUS) [14198202]

(Common to all branches)

Course Outcomes: *At the end of the course the student will be able to*

- *Use matrix theory to solve linear system of equations*
- *Find eigen values and eigen vectors and use Cayley Hamilton theorem to find inverse and powers of a matrix and also reduce a given quadric form to Canonical form*
- *Learn applications of integration and evaluation of multiple integral*
- *Use Beta, Gamma functions to evaluate improper integrals*
- *Use vector differentiation and integration with vector integral theorems*

UNIT I: Linear systems of equations

Objective: *To enable the student to use matrix theory to solve linear system of equations.*

Rank-Echelon form, Normal form – Solution of Linear Systems – Direct Methods- Gauss Elimination - Gauss Jordon and Gauss Seidal Methods.

Application: Finding the current in a electrical circuit.

UNIT II: Eigen values - Eigen vectors and Quadratic forms

Objective: *To enable the student to find eigen values and eigen vectors of a matrix and apply Cayley Hamilton theorem.*

Eigen values - Eigen vectors– Properties – Cayley-Hamilton Theorem – **without proof** Inverse and powers of a matrix by using Cayley-Hamilton theorem- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative definite - semi definite - index – signature.

Application: Free vibration of a two-mass system.

UNIT III: Multiple integrals

***Objective*:** *To enable the student to apply integration to find length, volume and surface areas. Also the student will learn evaluations of multiple integrals.*

Review concepts of Curve tracing (Cartesian - Polar and Parametric curves)- **No question from this part**

Applications of Integration to Lengths, Volumes and Surface areas of revolution in cartesian and Polar Coordinates.

Multiple integrals - double and triple integrals – change of variables – Change of order of Integration

Application: Moments of inertia

UNIT IV: Special functions

Objective: *To enable the student to evaluate improper integrals using Beta, Gamma functions.*

Beta and Gamma functions- Properties - Relation between Beta and Gamma functions- Evaluation of improper integrals

Application: Evaluation of integrals

UNIT V: Vector Differentiation

Objective: *To enable the student to apply vector differentiation to physical and engineering situations.*

Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities

Application: Equation of continuity, potential surfaces

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UNIT VI: Vector Integration

Objective: *To enable the student to apply vector integration to find work done and force applied.*

Line integral – work done – Potential function – area- surface and volume integrals Vector integral trheorems: Greens, Stokes and Gauss Divergence Theorems (Without proof) and related problems.

application: work done by Force

REFERENCE BOOKS:

1. **GREENBERG,** Advanced Engineering Mathematics, 9th Edition, Wiley-India
2. **B.V. RAMANA,** Higher Engineering Mathematics, Tata McGrawhill
3. **ERWIN KREYSZIG,** Advanced Engineering Mathematics, 9th Edition, Wiley-India
4. **PETER O'NEIL,** Advanced Engineering Mathematics, Cengage Learning
5. **D.W. JORDAN AND T. SMITH,** Mathematical Techniques, Oxford University Press

Web Links:

1. NPTEL- Courses from reputed IIT's as available in the websites.

2. WEBEX

3. COURSERA

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B. Tech. I Year – II Sem.

ENGINEERING CHEMISTRY - 14198203
(Common to AME, CE, ME, MM)

UNIT-1: Water technology

Objective: *"For prospective engineers knowledge about water used in industries (boilers etc.) and for drinking purposes is useful; hence chemistry of water of hard water, boiler troubles and modern methods of softening hard water is introduced."*

Hard water: Estimation of hardness by hardness by EDTA method – Potable water – Sterilization and Disinfection – Boiler feed water – Boiler troubles – Priming and forming, scale formation, corrosion, caustic embrittlement, turbine deposits – Softening of water – Lime soda, Zeolite processes – Reverse osmosis – Electro Dialysis, Ion exchange process.

UNIT II: Electrochemistry

Objective: *"Knowledge of galvanic cells, electrode potentials, and concentration cells is necessary for enginees to understand corrosion problem and its control; also this knowledge helps in understanding modern bio-sensors, fuel cells and improves them."*

Concept of Ionic mobilities – Applications of Kohlrausch law – Conductometic titrations – Galvanic cells – Elctrode potentials – Nernst equation – Electrochemical series – Potentiometric titrations – Concentration cells – Ion selective electrode: Batteries and Fuel cells.

UNIT III: Corrosion

Objective: *"The problems associated with corrosion are well known and the engineers must be aware of these problems and also how to counter them".*

Causes and effects of corrosion – theories of corrosion (dry, chemical and electrochemical corrosion) – Factors effecting corrosion – Corrosion control methods – Cathode protection – Sacrificial Anodic, Impressed current methods – Surface coating – Methods of application on metals (Hot dipping, Galvanizing, tinning, Cladding, Electroplating, Electro less, plating) – Organic surface coatings – Paints – Their constituents and their functions.

UNIT IV: High polymers

Objective: "*Plastics are materials used very widely an engineering materials. An understanding of properties particularly physical and mechanical properties of polymers / plastics / elastomers helps in selecting suitable materials for different purpose ".*

Types of Polymerization – Stereo Polymers – Physical and mechanical properties of polymers – Plastics – Thermoplastics and thermo setting plastics – Compounding and Fabrication of plastics – preparation and properties of Polyethylene, PVC and Bakelite – Elastomers – Rubber and Vulcanization – Styrene butadiene rubber – Thiokol – applications.

UNIT V: Fuels

Objective: *"A board understanding of the more important fuels employed on a large scale is necessary for all engineer to understand energy – related problems and solve them".*

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Coal – Proximate and ultimate analysis – Numerical problems based on analysis – Calorific value – HCV and LVC – Problems based calorific values; petroleum – Refining – Cracking – Petrol – Diesel knocking: Gaseous fuels – Natural gas – LPG, CNG – Combustion – Problems on air requirements.

UNIT VI: Chemistry of advanced materials

Objective: *"With the knowledge available now, future engineers should know at least some of the advanced materials that are becoming available. Hence some of them are introduced here. "*.

Nanomaterials (Preparation of carbon nanotubes and fullerences – Properties of nanomaterials – Engineering applications) – Liquid crystals (Types – Application in LCD and Engineering Applications) – Fiber reinforced plastics – Biodegradable polymers – Conducting polymers – Solar cells (Solar heaters – Photo voltaic cells – Solar reflectors – Green house concepts – Green chemistry (Methods for green synthesis and Applications) – Cement – Hardening and setting Deterioration of cement concrete.

STANDARD BOOKS

1. Jain and Jain (Latest Edition), Engineering Chemistry, Dhanpat Rai Publishing company Ltd.,
2. N. Y. S. Murthy, V. Anuradha, K. RamaRao, "A Text Book of Engineering Chemistry" Maruthi Publications.
3. C. Parameswara Murthy, C. V. Agarwal, Adhra Naidu (2006) Text Book of Engineering Chemistry, B. S. Publications.
4. B. Sivasankar (2010), Engineering Chemistry, McGraw-Hill companies.
5. Ch. Venkata Ramana Reddy and Rama devi (2013), Engineering Chemistry, Cengage Learning.

REFERENCES

1. S. S. Dara (2013) Text Book of Engineering Chemistry, S. Chand Technical Series.
2. K. Sesha Maheswaeamma and Mridula Chugh (2013), Engineering Chemistry, Pearson Publications.
3. R. Gopalan, D. Venkatappayya, Sulochana, Nagarajan (2011), Text Book of Engineering Chemistry, Vikas Publications.
4. B. Viswanathan and M. Aulice Scibioh (2009), Fuel cells, Principals and applications.

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B.Tech. I Year– II Sem.

ENIGINEERING MECHANICS - 14198204
(Common to AME, CE, ME, MN)

Course Objectives: The students completing this course are expected to understand the concepts of forces and its resolution in different planes, resultant of force system, Forces acting on a body, their free body diagrams using graphical methods. They are required to understand the concepts of centre of gravity and moments of inertia and their application, Analysis of frames and trusses, different types of motion, friction and application of work - energy method.

UNIT – I

Learning objectives: To understand the concepts of forces and its resolution in different planes.

Introduction to Engg. Mechanics – Basic Concepts.
Systems of Forces : Coplanar Concurrent Forces – Components in Space – Resultant – Moment of Force and its Application – Couples and Resultant of Force Systems. Introduction**,** limiting friction and impending motion, coulomb's laws of dry friction, coefficient of friction, cone of friction.

UNIT II

Learning objectives: To understand the concepts of Equilibrium of Systems of Forces, law of Triangle of forces and converse of the law of polygon of forces.

Equilibrium of Systems of Forces: Free Body Diagrams, Equations of Equilibrium of Coplanar Systems, Spatial Systems for concurrent forces. Lamis Theorm, Graphical method for the equilibrium of coplanar forces, Converse of the law of Triangle of forces, converse of the law of polygon of forces condition of equilibrium.

UNIT – III

Learning objectives: To understand the concepts of Centroid, Centre of Gravity law of Triangle of forces and pappus theorem.

Centroid : Centroids of simple figures (from basic principles) – Centroids of Composite Figures.
Centre of Gravity : Centre of gravity of simple body (from basic principles), centre of gravity of composite bodies, pappus theorem.

UNIT IV

Learning objectives: To understand the concepts of Area moments of Inertia, Mass Moment of Inertia.

Area moments of Inertia : Definition – Polar Moment of Inertia, Transfer Theorem, Moments of Inertia of Composite Figures, Products of Inertia, Transfer Formula for Product of Inertia.

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Mass Moment of Inertia : Moment of Inertia of Masses, Transfer Formula for Mass Moments of Inertia, mass moment of inertia of composite bodies.

UNIT – V

Learning objectives: To understand the concepts of Rectilinear and Curvilinear motions, Analysis as a Particle and Analysis as a Rigid Body in Translation.

Kinematics : Rectilinear and Curvilinear motions – Velocity and Acceleration – Motion of Rigid Body – Types and their Analysis in Planar Motion. **Kinetics:** Analysis as a Particle and Analysis as a Rigid Body in Translation – Central Force Motion – Equations of Plane Motion – Fixed Axis Rotation – Rolling Bodies.

UNIT – VI

Learning objectives: To understand the concepts of Equations for Translation, D'Alembert's principle in rotation.

Work – Energy Method: Equations for Translation, Work-Energy Applications to Particle Motion, Connected System-Fixed Axis Rotation and Plane Motion. Impulse momentum method.
Mechanical Vibrations: Definitions, Concepts – Simple Harmonic motion – Free Vibrations, Simple and Compound pendulums – Torsional Vibrations.

TEXT BOOKS:

1. Engg. Mechanics - S.Timoshenko & D.H.Young., 4th Edn - , Mc Graw Hill publications.
2. Engineering Mechanics statics and dynamics:A Nelson , Mc Graw Hill publications
3. Engineering Mechanics: GS Sawhney, PHI Learning Pvt. Ltd.
4. Engineering Mechanics: Basudeb Bhattacharyya, Oxford University Press

REFERENCES:

1. Engineering Mechanics: statics and dynamics – I.H.Shames, – Pearson Publ.
2. Mechanics For Engineers, dynamics: - F.P.Beer & E.R.Johnston –5th Edn Mc Graw Hill Publ.
3. Engineering Mechanics: Fedinand . L. Singer , Harper – Collins

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Useful Web-links : http://nptel.ac.in/courses.php
http://mit.espe.edu.ec/courses/mechanical-engineering/

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B.Tech. I Year – II Sem.

ENGINEERING DRAWING - 14198275
(Common to AME, CE, ME, MN)

Course Objectives: Engineering drawing being the principle method of communication for engineers, the objective is to introduce the students, the techniques of constructing the various types of polygons, curves and scales. The objective is also to visualize and represent the 3D objects in 2D planes with proper dimensioning, scaling etc.

UNIT I

Learning objectives: To understand the concepts and use of drawing Instruments and Curves used in Engineering Practice.

Introduction to drawing Instruments and uses. Lettering.

Polygons : Construction of regular polygons using given length of a side; Curves used in Engineering Practice, conic sections, construction of conics by different methods, cycloidal curves, epi and hypo-cycloids. Involutes.

UNIT II

Learning objectives: To understand the concepts of Vernier and Diagonal scales and concepts of orthographic projections.

Scales : Vernier and Diagonal scales.
Introduction to orthographic projections; projections of points; projections of straight lines parallel to both the planes; projections of straight lines – parallel to one plane and inclined to the other plane.

UNIT III

Learning objectives: To understand the concepts of projections of straight lines and traces.

Projections of straight lines inclined to both the planes, determination of true lengths and angle of inclinations and traces.

UNIT IV

Learning objectives: To understand the concepts of Projections of planes.

Projections of planes: Regular planes perpendicular/parallel to one plane and inclined to the other reference plane; inclined to both the reference planes.

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UNIT V

Learning objectives: To understand the concepts of Projections of various solids.

Projections of Solids – Prisms, Pyramids, Cones and Cylinders with the axis inclined to one of the planes.

UNIT VI

Learning objectives: To understand the concepts of Projections of isometric views to orthographic views.

Conversion of isometric views to orthographic views; Conversion of orthographic views to isometric views.

TEXT BOOKS:

1. Engineering Graphics by PI Varghese, McGrawHill Publishers
2. Engineering Drawing by N.D. Butt, Chariot Publications
3. Engineering Drawing by K.L.Narayana & P. Kannaiah, Scitech Publishers.

REFERENCE BOOKS:

1. Engineering Drawing by Agarwal & Agarwal, Tata McGraw Hill Publishers
2. Engineering Drawing by Shah & Rana, Pearson Publishers
3. Engineering Drawing + AutoCad – K Venugopal, V. Prabhu Raja, New Age Publishers

Useful Web-links : http://nptel.ac.in/courses.php
http://mit.espe.edu.ec/courses/mechanical-engineering/

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B. Tech. I Year – II Sem.

PROFESSIONAL ETHICS and HUMAN VALUES- 14198296
(Common to AME, CE, ME, MM)

Course Outcomes:
Upon completion of this course, students should have

- Understood the core values that shape the ethical behavior of an engineer
- Exposed awareness on professional ethics and human values
- Known their role in technological development
- The knowledge of contemporary issues related to human and professional interactions at work place which helps students to understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.

UNIT I: Human values
Objective: *To understand the moral values that ought to guide the engineering profession. It is intended to develop a set of beliefs, attitudes, and habits that engineers should display concerning morality.*

Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing – Honesty –Courage – Value time – Co-operation – Commitment – Empathy – Self-confidence – Spirituality- Character.

UNIT II: Engineering ethics
Objective: *Important goal of engineering ethics is the discovery of the set of justified moral principles of obligation, rights and ideals that ought to be endorsed by the engineers and apply them to concrete situations.*

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics-Consensus and Controversy –Professional and Professionalism –Professional Roles to be played by an Engineer –Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg‟s Theory – Gilligan‟s Argument – Heinz's Dilemma.

UNIT III: Engineering as social experimentation
Objective: *To impart reasoning and analytical skills need to apply ethical concept to engineering decisions.*

Comparison with Standard Experiments – Knowledge gained – Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes – Codes and Experimental Nature of Engineering.

UNIT IV: Engineers' responsibility for safety and risk
Objective: *To make the students aware of the safety concept, risk factors and risk benefit analysis.*

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences – Expected Probability - Reversible Effects- Threshold

Levels for Risk- Delayed v/s Immediate Risk – Safety and the Engineer - Designing for Safety – Risk - Benefit Analysis-Accidents.

UNIT V: Engineer's responsibilities and rights

Objective: *To identify the moral issues involved in both management and engineering areas, an understanding of the engineer's rights such as collegiality, conflict of interest, collective bargaining.*

Collegiality - Techniques for Achieving Collegiality –Two Senses of Loyalty-obligations of Loyalty – misguided – Loyalty - professionalism and Loyalty- Professional Rights – Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self Interest , Customs and Religion- Ethical egoism-Collective bargaining Confidentiality Acceptance of Bribes/Gifts-when is a Gift and a Bribe-examples of Gifts v/s Bribes-problem solving-interests in other companies-Occupational in other companies-Occupational - price fixing-endangering lives- Whistle Blowing-types of whistle blowing-when should it be attempted-preventing whistle blowing.

UNIT VI: Global issues

Objective: *To provide an understanding of interface between social technological and natural environments on global issues.*

Globalization- Cross-culture Issues-Environmental Ethics-Computer Ethics-computers as the instrument of Unethical behaviour-computers as the object of Unethical Acts-autonomous computers-computer codes of Ethics-Weapons Development-Ethics and Research Analysing Ethical Problems in Research-Intellectual Property Rights.

TEXT BOOKS

1. "Engineering Ethics includes Human Values" by M.Govindarajan, S.Natarajan and V.S.SenthilKumar-PHI Learning Pvt. Ltd-2009

2. "Professional Ethics and Morals" by Prof.A.R.Aryasri, Dharanikota Suyodhana - Maruthi - Publications

3. "Professional Ethics and Human Values" by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran- Laxmi Publications

4. "Professional Ethics and Human Values" by Prof.D.R.Kiran-

5. "Indian Culture, Values and Professional Ethics" by PSR Murthy-BS Publication

6. "Ethics in Engineering" by Mike W. Martin and Roland Schinzinger – Tata McGraw-Hill – 2003.

7. "Engineering Ethics" by Harris, Pritchard and Rabins, CENGAGE Learning, India Edition, 2009.

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B.Tech., Automobile Engineering **With effective from 2014-15 Batch**

B. Tech. I Year – II Sem.

ENGLISH COMMUNICATION SKILLS LAB-II - 14198211

(Common to all branches)

Course Outcomes: At the end of the semester the student will be able to

- Understand the benefits of learning kinesics
- Make the social life comfortable with conversational ability
- Adopt employability skills
- Develop coordinating skills
- Exhibit good argumentative skills

Course Objectives:

- To make the learner industry ready
- To enlighten the importance of non-verbal skills along with verbal
- To equip with good conversational abilities
- To improve public speaking ability

S. No.	UNIT	TOPIC
1	I	Body language
2	II	Dialogues
3	III	Interviews and telephonic interviews
4	IV	Group discussions
5	V	Presentation skills
6	VI	Debates

Prescribed text book:

Strengthen your communication skills by Maruti publishing house

Suggested software:

Strengthen your communication skills by Maruti publishing house

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B.Tech., Automobile Engineering **With effective from 2014-15 Batch**

B. Tech. I Year – II Sem.

ENGINEERING CHEMISTRY LABORATORY - 14198212

List of Experiments:

1. Introduction to chemistry laboratory - Molarity, Normality, Primary, Secondary standard solutions, Volumetric titrations, Quantitative analysis, Quantitative analysis etc.,
2. Trial experiment – Estimation of HCl using standard Na_2CO_3 solution.
3. Estimation of $KMnO_4$ using standard Oxalic acid solution.
4. Estimation of Ferric ion using standard $K_2Cr_2O_7$ solution.
5. Estimation of Copper using standard $K_2Cr_2O_7$ solution.
6. Estimation of Total Hardness water using standard EDTA solution.
7. Estimation of Copper using standard EDTA solution.
8. Estimation of Copper using Colorimeter.
9. Estimation of pH of the given sample solution using pH meter.
10. Conductometric Titrations between strong acid and strong base.
11. Conductometric Titrations between strong acid and weak base.
12. Potentiometric Titrations between strong acid and strong base.
13. Potentiometric Titrations between strong acid and weak base.
14. Estimation of Zinc using standard potassium ferrocyanide solution.
15. Estimation of Vitamin - C

Standard Books:

1. Dr. Jyotsna Cherukuri (2012) Laboratory manual of engineering chemistry-2, VGS Techno series.
2. Chemistry practical manual, Lorven publications
3. K. Mukkanti (2009) Practical Engineering Chemistry, BS Publicaitons

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I Year B.Tech. – II Sem.

ENGINEERING WORKSHOP & IT WORKSHOP - 14198213

ENGINEERING WORKSHOP:

Course Objective: To impart hands-on practice on basic engineering trades and skills.

Note: At least two exercises to be done from each trade.

Trades:

Carpentry
1. T-Lap Joint
2. Cross Lap Joint
3. Dovetail Joint
4. Mortise and Tennon Joint

Fitting
1. Vee Fit
2. Square Fit
3. Half Round Fit
4. Dovetail Fit

Black Smithy
1. Round rod to Square
2. S-Hook
3. Round Rod to Flat Ring
4. Round Rod to Square headed bolt

House Wiring
1. Parallel / Series Connection of three bulbs
2. Stair Case wiring
3. Florescent Lamp Fitting
4. Measurement of Earth Resistance

Tin Smithy
1. Taper Tray
2. Square Box without lid
3. Open Scoop
4. Funnel

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IT WORKSHOP:

Objectives: The IT Workshop for engineers is a 6 training lab course spread over 45 hours .The modules include training on PC hardware ,Internet and WWW and Productivity tools including MS-Word,Excel,Powerpoint and Publisher.

1. Identify the components of a computer, components in a CPU and its functions. Draw block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

2. Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a viva.

3. Every student should individually install windows XP on the personal computer. Lab instructors should verify the installation and follow it up with a viva.

4. Every student should install Linux on the computer. This computer should have windows installed .The system should be configured as dual boot with both windows and Linux. Lab instructors should verify the installation and follow it up with a viva.

5. Several mini tasks would be that covers Basic commands in Linux and Basic system administration in Linux which includes: Basic Linux commands in Bash, Create hard and symbolic links .Text processing, using wildcards.

6. Web Browsers and Surfing the web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and popup blockers.also, plugins like Macromedia Flash and JRE for Applets should be configured.

7. Search Engines and Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors.

8. Cyber Hygiene: Students would be exposed to the various threats on then internet and would be asked to configure their computer to be safe on the internet. They need to first install an anti virus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block popups, block activeX downloads to avoid virus and/or worms.

9. Creating Project Abstract features to be covered: Formatting styles, inserting table, bullets and numbering, changing text direction ,cell alignment, footnote, hyperlink, symbols, spell check, track changes.

10. Creating A NewsLetter: Features to be covered-table of content, news paper coloums, images from files and clipart, drawing toolbar and wordart, formatting images, textboxes and paragraphs.

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11. Excel orientation: The mentor needs to tell the importance of Ms-Excel as a spreadsheet tool, give the details of the four tasks and features that would be covered in each using Excel- Accessing, Overview of toolbars, saving Excel files, using help and resources.

12. Students will be working on basic power point utilities and tools which help them create a basic power point presentation.

13. PPT orientation slide layouts, inserting text, wordart, formatting text, bullets and numbering auto shapes lines and arrows in both Latex and Power point.