G. PULLA REDDY ENGINEERING COLLEGE (Autonomous): KURNOOL
Accredited by NBA of AICTE and NAAC of UGC
An ISO 9001:2008 Certified Institution
Affiliated to JNTUA, Anantapur

Scheme – 2017
B.Tech I and II Semester Syllabus
G. Pulla Reddy Engineering College (Autonomous): Kurnool
Accredited by NBA of AICTE and NAAC of UGC
Affiliated to JNTUA, Anantapuramu

FOUR YEAR B.Tech DEGREE COURSE

Scheme of instruction and Examination

(Effective from 2017-18)

I/II Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics- I / II	BS101/ BS102	3	2	1	-	3	60	40	100
2	Computer Programming / Data Structures	CS101/ CS103	3	3	-	-	3	60	40	100
3	Professional Communication and English – I / II	HU101/ HU102	3	3	-	-	3	60	40	100
4	Applied Physics	BS103	3	2	1	-	3	60	40	100
5	Engineering Chemistry	BS105	3	3	-	-	3	60	40	100
6	Engineering Drawing	ME101	3	-	3	-	3	60	40	100
II	**Practicals**									
7	Computer Programming Lab	CS102	1	-	-	2	3	50	50	100
8	Applied Physics Lab	BS104	1	-	-	2	2	50	50	100
9	Engineering Chemistry Lab	BS106	1	-	-	2	2	50	50	100
Total			**21**	**13**	**5**	**6**		**510**	**390**	**900**

I/II Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics- I / II	BS101/ BS102	3	2	1	-	3	60	40	100
2	Computer Programming / Data Structures	CS101/ CS103	3	3	-	-	3	60	40	100
3	Professional Communication and English – I / II	HU101/ HU102	3	3	-	-	3	60	40	100
4	Elements of Electrical Engineering	EE101	3	2	1	-	3	60	40	100
5	Basic Electronics Engineering	EC101	3	2	1	-	3	60	40	100
6	Engineering Mechanics	CE101	3	2	1	-	3	60	40	100
II	**Practicals**									
7	Data Structures Lab	CS104	1	-	-	2	3	50	50	100
8	Phonetics & Communication Skills Lab	HU103	1	-	-	2	2	50	50	100
9	Engineering Workshop	ME102	1	-	-	2	3	50	50	100
Total			**21**	**14**	4	**6**		**510**	**390**	**900**

FOUR YEAR B.Tech DEGREE COURSE

Scheme of instruction and Examination

(Effective from 2017-18)

(For ME, EEE, CE)

I Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics – I	BS101	3	2	1	-	3	60	40	100
2	Computer Programming	CS101	3	3	-	-	3	60	40	100
3	Professional Communication and English – I	HU101	3	3	-	-	3	60	40	100
4	Applied Physics	BS103	3	2	1	-	3	60	40	100
5	Engineering Chemistry	BS105	3	3	-	-	3	60	40	100
6	Engineering Drawing	ME101	3	-	3	-	3	60	40	100
II	**Practicals**									
7	Computer Programming Lab	CS102	1	-	-	2	3	50	50	100
8	Applied Physics Lab	BS104	1	-	-	2	2	50	50	100
9	Engineering Chemistry Lab	BS106	1	-	-	2	2	50	50	100
Total			**21**	**13**	**5**	**6**		**510**	**390**	**900**

II Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics – II	BS102	3	2	1	-	3	60	40	100
2	Data Structures	CS103	3	3	-	-	3	60	40	100
3	Professional Communication and English – II	HU102	3	3	-	-	3	60	40	100
4	Elements of Electrical Engineering	EE101	3	2	1	-	3	60	40	100
5	Basic Electronics Engineering	EC101	3	2	1	-	3	60	40	100
6	Engineering Mechanics	CE101	3	2	1	-	3	60	40	100
II	**Practicals**									
7	Data Structures Lab	CS104	1	-	-	2	3	50	50	100
8	Phonetics & Communication Skills Lab	HU103	1	-	-	2	2	50	50	100
9	Engineering Workshop	ME102	1	-	-	2	3	50	50	100
Total			**21**	**14**	4	**6**		**510**	**390**	**900**

FOUR YEAR B.Tech DEGREE COURSE

Scheme of instruction and Examination

(Effective from 2017-18)

(For CSE, ECE)

I Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics – I	BS101	3	2	1	-	3	60	40	100
2	Computer Programming	CS101	3	3	-	-	3	60	40	100
3	Professional Communication and English – I	HU101	3	3	-	-	3	60	40	100
4	Elements of Electrical Engineering	EE101	3	2	1	-	3	60	40	100
5	Basic Electronics Engineering	EC101	3	2	1	-	3	60	40	100
6	Engineering Mechanics	CE101	3	2	1	-	3	60	40	100
II	**Practicals**									
7	Computer Programming Lab	CS102	1	-	-	2	3	50	50	100
8	Phonetics & Communication Skills Lab	HU103	1	-	-	2	2	50	50	100
9	Engineering Workshop	ME102	1	-	-	2	3	50	50	100
Total			**21**	**14**	4	**6**		**510**	**390**	**900**

II Semester **Scheme: 2017**

S.No.	Subject	Code	Credits	Scheme of Instruction Periods/Week			Duration of End Exam (Hours)	Scheme of Examination Max Marks		
				L	D/T	P		End Exam	Internal Assessment	Total
I	**Theory**									
1	Engineering Mathematics – II	BS102	3	2	1	-	3	60	40	100
2	Data Structures	CS103	3	3	-	-	3	60	40	100
3	Professional Communication and English – II	HU102	3	3	-	-	3	60	40	100
4	Applied Physics	BS103	3	2	1	-	3	60	40	100
5	Engineering Chemistry	BS105	3	3	-	-	3	60	40	100
6	Engineering Drawing	ME101	3	-	3	-	3	60	40	100
II	**Practicals**									
7	Data Structures Lab	CS104	1	-	-	2	3	50	50	100
8	Applied Physics Lab	BS104	1	-	-	2	2	50	50	100
9	Engineering Chemistry Lab	BS106	1	-	-	2	2	50	50	100
Total			**21**	**13**	**5**	**6**		**510**	**390**	**900**

ENGINEERING MATHEMATICS – I (EM1)

I Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
BS101	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Solve first order differential equations.

CO2: Identify different types of higher order differential equations and their applications in solving Engineering problems

CO3: Verify Rolle's and Lagrange's mean value theorems. Apply partial derivatives to study maxima and minima also apply integration techniques and evaluate double and triple integrals.

CO4: Apply Laplace transform to a given function also to solve differential equations

CO5: Understand gradient, divergent, curl. Apply Green's, Stoke's and Gauss-divergence theorems to evaluate line, surface and volume integrals.

UNIT - I

Differential Equations

First order and first degree differential equations - Exact, Non-exact equations, Linear and Non- linear equations. Applications: Newton's law of cooling, law of natural growth and decay, L-R and C-R circuits.

UNIT - II

Higher Order Differential Equations

Homogeneous linear differential equations of second and higher order with constant coefficients, Non-homogeneous term of the type $f(x) = e^{ax}, \sin ax, x^n, e^{ax}v(x), xv(x)$ and General case. Applications to L-C-R circuits.

UNIT - III

Differential Calculus

Rolle's theorem, Lagrange's mean value theorem. Maxima and minima of functions of two variables.

Multiple Integrals

Double integrals, change of order of integration, Change to polar coordinates. Area and volume by double integration. Triple integrals, volume by triple integrals.

UNIT - IV

Laplace Transforms

Laplace transform of standard functions, first & second shifting theorems, Laplace transforms of derivatives, integrals, multiplication by t, division by t and periodic functions. Inverse Laplace transforms, Convolution Theorem. Applications of Laplace transforms to ordinary differential equations.

UNIT - V

Vector Calculus

Scalar and Vector point functions. Divergence, curl, gradient, solenoidal and irrotational vectors. Repeated operations by del. Green's theorem, Stoke's theorem and Gauss - Divergence theorem (Statement only). Applications to theorems.

Text Books :

1. B.S. Grewal- Higher Engineering Mathematics. Khanna Publishers, 42nd Edition, 2012.
2. T.K.V.Iyengar and others -A Text Book of Engineering Mathematics,Vol 1-S.Chand & Company, 13th Edition 2014.

Reference Books :

1. B.V. Ramana -Higher Engineering Mathematics, TMH Publishers, 2nd Edition, 2006.
2. N.P.Bali and others -A Text Book of Engineering Mathematics, Lakshmi publishers, 7th Edition, 2009.
3. Erwyn Kreyszig -Advanced Engineering Mathematics, John wiley, 8th Edition 2006.

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

COMPUTER PROGRAMMING (CP)

I Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
CS101	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		3	0	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Design an algorithm and flow chart for a given problem.

CO2: Summarize the structure and tokens of C program.

CO3: Explain the use of Arrays in C program.

CO4: Illustrate the applications of functions and pointers.

CO5: Understand the purpose of structures and files in C.

UNIT – I

Fundamentals of Computers

Block diagram of a Computer, Types of Programming languages, Algorithm- Characteristics of an algorithm, Flow charts and Examples.

C Fundamentals

Identifiers and Key words, Data Types, Constants and Variable declarations, Operators, Expressions, Header files.

UNIT – II

Data input/output

printf(), scanf(), getchar(), putchar(), gets(), puts(); Type conversion- implicit, explicit.

Flow Control

Selection- if statements, switch statement, goto statement. Loops- While, do-while, for; break, continue, nested loops.

UNIT – III

Arrays

Declaring and Initializing One dimensional and Two dimensional arrays, Processing an array, Character arrays, String handling functions: strlen(), strcpy(), strcmp(), strcat(). Examples – Matrix operations.

Functions

Definition, Accessing a function, passing arguments to a function, storage classes: automatic, external, static, register; Recursion, Passing arrays to a function.

UNIT – IV

Pointers

Introduction to pointers, Pointer declarations, Operations on pointers, Pointers and arrays; Passing address to a function; Function returning Pointer; Pointer to a function, Dynamic Memory Allocation.

UNIT – V

Structures and Unions

Defining a structure, Processing a structure, Structures and pointers, Passing structures to a function, Self-referential structures, Unions, User-defined data types- typedef, enum.

Files

Introduction, Opening a file, Reading data from a file, Writing data to a file and Appending data to a file, Closing a File, Error handling functions in files.

Text Books :

1. Ron S.Gottfried, Programming with C, (TMH – Schuam Outline Series) 3rd Edition -2011.
2. B.W. Kernignan and Dennis M.Ritchie, The C Programming Language, (PHI), 2nd Edition 2003.

Reference Books :

1. E.Balaguruswamy, Programming in ANSI C, TMH, 2003.
2. Yashavanth P.Kanetkar , Let US C , BPB Publications, 7th Edition,2007.
3. Ajay Mittal, Programming in C, Pearson Education, 2010.

Web References:

1. https://www.tutorialspoint.com/cprogramming/c_program_structure.htm
2. http://fresh2refresh.com/c-programming/c-basic-program/

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

PROFESSIONAL COMMUNICATION AND ENGLISH – I (PCE – I)

I Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
		L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
HU101	Foundation	3	-	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO 1: Use Grammatically acceptable English in Oral and Written communication.

CO 2: Use appropriate Vocabulary in Technical and General Contexts.

CO 3: Comprehend General and Technical Content using various Reading Skills like Skimming and Scanning.

CO 4: Write Functional Letters, Summaries and Essays of topical, Narrative, Descriptive, Analytical and Persuasive nature.

UNIT – I

Nobel Lecture - Kailash Satyarthi
Vocabulary: Synonyms and antonyms
Grammar: Parts of Speech, Types of Nouns, Pronouns and Adjectives
Reading: Reading with a purpose: reading for understanding
Writing: Writing notes and paragraphs

UNIT – II

The Doctor's Word - R K Narayan
Vocabulary: One-word substitutes, Idioms and Idiomatic Phrases
Grammar: Adverbs, Verbs –Verb forms, Types of Verbs, Prepositions, Conjunctions and Articles, Word Order
Reading: Skimming and Scanning
Writing: Functional Letters – Request Letters, Complaint Letters

UNIT – III

Stay Hungry, Stay Foolish - Steve Jobs
Vocabulary: Prefixes and Suffixes, Homophones and Homonyms
Grammar: Tenses, Concord, Voices and Reported Speech
Reading: Use of Dictionary, Thesaurus, Library and Internet for Information
Writing: Note–Taking and Note–Making, Completion of Stories

UNIT – IV

The Open Window – Saki(H H Munro)
Vocabulary: Words often Confused and Collocations
Grammar: Question Tags, Degrees of Comparison, Transformation of Sentences and Correction of Sentences
Reading: Reading Comprehension
Writing: Précis writing, Description of Objects, Story making from Pictures.

Detailed Study Text:

1. The Enriched Reading by D. Sudha Rani, Pearson India Education Services Pvt. Ltd, Second Impression, 2017.

Reference Books:

1. Michael Swan, Practical English Usage, Third Edition, OUP, 2006.
2. David Green, Contemporary English Grammar, Structure and Composition, , Second Edition, Lakshmi Publications, 2015.
3. Oxford Advanced Learners Dictionary of Current English, OUP, 2015.
4. Meenakshi Raman and Sangeetha Sarma, Technical Communication Principles and Practice, 3rd Edition, OUP, 2015.
5. Raj N Bakshi, English Grammar Practice, Orient Blackswan, 2005.

Question Paper Pattern:

Sessional Exam

I Sessional Examination : 30 Marks

1. Essay Type Question – 8 Marks
2. Short Answer Questions – 8 Marks
3. Vocabulary – 4 Marks
4. Grammar – 5 Marks
5. Letter Writing – 5 Marks

II Sessional Examination : 30 Marks

1. Essay Type Question – 8 Marks
2. Short Answer Questions – 8 Marks
3. Vocabulary – 4 Marks
4. Grammar – 6 Marks
5. Reading Comprehension – 4 Marks

End Exam

1. Essay Type Question – 10 Marks
2. Short Answer Questions – 8 Marks
3. Vocabulary – 12 Marks
4. Grammar – 10 Marks
5. Reading Comprehension – 10 Marks
6. Letter Writing – 10 Marks

APPLIED PHYSICS (AP)

I /II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
BS103	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Understand the different crystal systems, crystal planes and determination of the Crystal Structure, Production, detection, properties and applications of ultrasonic waves, determination of velocity of ultrasonic waves in liquids.

CO2: Understand the phenomenon of interference, diffraction and their applications

CO3: Understand the origin of Magnetism, hysteresis, soft and hard magnetic materials; Superconductivity, types, characteristics, Messiner and Josephson effects and of superconductors.

CO4: Understand different production methods of lasers and their applications, different types of optical fibers, losses in fibers and applications of optical fibers.

CO5: Properties, synthesis, applications of Nanomaterials and Carbon Nanotubes.

UNIT – I

Crystallography

Space lattice, Unit cell, Crystal systems, Miller Indices, Bravais Lattices, Interplanar Distance (without derivation), Number of atoms per unit cell, Coordination Number, Atomic Radius, Packing Factor for SC, BCC and FCC. Bragg's law, Bragg's X ray Spectrometer, Structural determination by Laue method, Powder method.

Ultrasonics

Introduction, Properties of ultrasonics, Production of ultrasonics by Magnetostriction method, Piezoelectric method, Detection of ultrasonics, Determination velocity of ultrasonics in liquids. Applications: SONAR, NDT, general applications.

UNIT – II

Interference

Introduction, Conditions for interference, Interference due to thin uniform film, wedge shaped film, Newton's rings. Applications of interference – Testing of flatness, determination of wavelength, radius of curvature, refractive index of liquid, Non-reflective coatings.

Diffraction

Introduction, Fraunhoffer diffraction due to single slit, double slit, grating, circular aperture (qualitative analysis only), Determination of wavelength using grating, Resolving power, Rayleigh's criterion for resolution, Resolving power of grating and telescope.

UNIT – III

Magnetic Materials

Origin of magnetism, permeability, susceptibility, Hysteresis, soft and hard magnetic materials and their applications, Ferrites: introduction**,** properties and applications.

Superconductivity

Introduction, properties and applications of superconductors, flux quantization, Meissner effect, Type-I and Type-II Superconductors, high temperature superconductors, Josephson effect, SQUIDS.

UNIT – IV

Lasers

Introduction, spontaneous and stimulated emission of radiation, characteristics of lasers, components of laser, Ruby, He-Ne, Nd-YAG and semiconductor lasers.

Fiber Optics

Principle and propagation of light in optical fibers, structure of optical fibers, types of optical fibers and their differences, Acceptance angle, Numerical aperture(NA), losses in optical fibers, fiber optic communication, fiber optic sensors.

UNIT – V

Nanomaterials

Introduction, Properties of nano particles, Synthesis by Ball Mill method, Sol-Gel method, CVD method, PVD method, Pulsed Laser Deposition method, Wire explosion method. Applications of nano materials

Carbon nano tubes

Carbon nano tubes: Classification, properties, Synthesis methods – Ball Mill method, CVD method, Arc method, Applications of carbon nano tubes, Effect of nanotechnology on environment.

Text Books :

1. M.N.Avadhanulu and P.G.Kshirsagar, A text Book of Engineering Physics, S.Chand & Company
2. V.Rajendran, Engineering Physics, McGraw Hill Education (India) Pvt Limited.
3. Dr. K.Vijaya Kumar, Engineering Physics, S.Chand & Company

Reference Books :

1. Hitendra K. Malik & A.K. Singh, Engineering Physics, Tata McGraw Hill Education Pvt. Ltd.
2. S.O. Pillai, Solid State Physics, New Age International Publications.
3. Francis A. Jenkins, Harvey E. White, Fundamentals of Optics, McGraw Hill International Editions.

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

ENGINEERING CHEMISTRY (EC)

I / II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
BS105	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		3	-	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Understand the concept of electrochemistry, distinguishes primary and secondary cell, energy storage devices and explains the concept of corrosion with preventing methods.

CO2: Describes the water quality issues for steam generation in the boilers and problems associated with treatment.

CO3: Understand the basic concepts of phase rule and refractories.

CO4: Judge the quality of coal, petrol, diesel and lubricants. Understands the efficiency of combustion.

CO5: Understand the chemistry of polymers and composits.

UNIT – I

Electrochemistry & Corrosion

Single electrode potential- Determination. EMF of a cell and its measurement, Nernst equation, numerical problems. Electrochemical series & its applications. Electrolyte concentration cells. Electrochemical energy systems – primary batteries – dry cell, secondary batteries- lithium ion cells, Fuel cells-H_2-O_2 Fuel cell. Conductometric titrations.

Process of Chemical & electrochemical corrosion and their mechanisms. Galvanic series. Galvanic corrosion, stress corrosion. Concentration cell corrosion- differential aeration corrosion, metal ion concentration corrosion and pitting corrosion. Factors influencing corrosion. Corrosion control methods - Cathodic protection and corrosion inhibitors. Protective coatings -metallic coatings - Hot dipping, and Electroplating of nickel and chromium

UNIT – II

Water Chemistry

Hardness of water- Types, expression, units and numerical problems. Analysis of water-Determination of hardness of water by EDTA method, alkalinity & dissolved oxygen by Winkler's method. Disadvantages of hard water-boiler troubles-scale and sludge, caustic embrittlement, priming & foaming and boiler corrosion. Water softening methods – internal conditioning – calgon process, colloidal conditioning & external conditioning – zeolite process and ion exchange process. Desalination – reverse osmosis.

UNIT – III

Phase rule & Refractories

Terms involved in phase rule equation, definition, explanation with examples. Application to one component system - water and sulphur systems. Condensed phase rule-Two component alloy systems - Pb-Ag system.

Refractory-classification. Properties- refractoriness, refractoriness under load, thermal spalling, porosity and thermal conductivity. Reasons for failure of refractory.

UNIT – IV

Fuel Technology & Lubricants

Fuels-Classification. Calorific value-types, units and its determination by Bomb calorimeter. Solid fuels- Coal-proximate and ultimate analysis. Liquid fuels-Petroleum-Origin, Extraction, Refining, cracking-catalytic cracking. Synthetic petrol-Fischer-Tropsch's & Bergius process, Reforming, knocking-octane number, diesel- cetane number. Preparation of biodiesel. Gaseous fuels-Composition & uses of Natural gas, LPG & CNG .Combustion- numerical problems- calculation of volume and

mass of oxygen and air . Flue Gas Analysis by Orsat's Apparatus.
Lubricants- Classification of lubricants with examples. Definition and significance of the following characteristics of a good lubricating oil- viscosity, viscosity index, flash & fire point, acid number, saponifaction value, pour point and cloud point.

UNIT – V

Polymers & Composites

Fundamentals of addition & condensation polymerization with examples. Thermoplastic and Thermosetting plastics. Preparation, properties and uses of PVC, TEFLON, Nylons, Bakelite, Polyurethane. Rubber – Processing of latex. Drawbacks of natural rubber, vulcanization, properties of vulcanized rubber. Synthetic rubber- Buna S, Buna N, Silicone and Butyl Rubbers.
Polymer composites – definition and uses of FRP - laminar composites.

Text Books :

1. P.C. Jain and Monika Jain, Engineering Chemistry, Dhanpat Rai and Sons, New Delhi 2010,15th edition.

Reference Books :

1. Shashi Chawla, A Reading of Engineering Chemistry, 3rd Edition, Dhanpat Rai and Co., New Delhi, 2011,3rd edition.
2. Gowariker et al., Polymer Science and Technology, Prentice Hall of India Pvt. Ltd., New Delhi, 2004, 10th reprint.
3. Puri, Sharma and Pathania " Principles of Physical Chemistry". Vishal Publishing Co.,Jalandhar.1991,3 1st edition.
4. Kuriacose, J.C and Rajaram, J, Engineering Chemistry, Volume I/II, Tata McGraw – Hill Publishing Co. Ltd. New Delhi, 2010, 2nd edition.
5. S.S.Dara, A Textbook of Engineering Chemistry, S. Chand & Co.Ltd. New Delhi, 2007,10th edition

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

ENGINEERING DRAWING (ED)

I / II Semester : Common for all Branches					Scheme : 2017			
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**Continuous Internal Assessment**	**End Exam**	**TOTAL**
ME101	Foundation	-	3	-	3	40	60	100
Sessional Exam Duration : 2 Hrs					**End Exam Duration: 3 Hrs**			

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

CO1: Understand the concept of projections of an object and draw the projection of points, straight lines and planes

CO2: Draw projection of regular solids

CO3: Draw the sectional views of regular solids and their surface developments

CO4: Draw the orthographic views from given isometric view

CO5: Draw the isometric views from the orthographic views

UNIT – I

Introduction to Engineering Drawing:

Drawing instruments and their uses, Lettering and Dimensioning. Introduction to polygons and conics. Introduction to scales (**not for End examinations**)

Orthographic projections:

Introduction, planes of projections, projections of points. First angle projection- Projections of straight lines- parallel to one and inclined to other plane- Inclined to both the planes (treatment is limited to simple problems only)

Projection of planes:

Regular planes- perpendicular, parallel to one reference plane and inclined to other reference planes - Inclined to both the reference planes

UNIT – II

Projections of solids:

Projections of right regular solids- prism, pyramid, cylinder and cone with axis inclined to one plane and inclined to both planes.

UNIT – III

Sections of Solids:

Sectional views of right regular solids - prism, pyramid, cylinder and cone. True shapes of Sections (Treatment is limited to simple problems only)

Development of Surfaces:

Development of surfaces of right regular solids and their sections - prism, pyramid, cylinder and cone.

UNIT – IV

Orthographic projections:

conversion of pictorial views into orthographic views.

UNIT – V

Isometric Projections:

Principle of Isometric projection, Isometric scale. Isometric projections of simple regular solids and compound solids.

Text Books

1. K.L.Narayana and P.Kannaiah“ Text book on Engineering Drawing,” Second Edition Scitech Publications, Chennai.,2006
2. N.D.Bhatt and V.M.Panchal,“ Elementary Engineering Drawing “, 45 th Edition , Charotar Publishing house , Anand, India., 2002

Reference Books

1. K.Venugopal, “ Engineering Drawing and Graphics with Auto CAD” , Fourth Edition,2001, New Age International(P) Limited, Publishers, New Delhi, 2001
2. Dhananjay A Jolhe, “ Engineering Drawing with an introduction to Auto CAD”, Tata Mc Graw-Hill Publishing Company Ltd. , New Delhi , 2008
3. M.B.Shaw & B.C.Rana “ Engineering Drawing “Second Edition Pearson Education , New Delhi, 2009

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question Paper Contains three Either OR type questions carrying 10 marks each

End Exam

Question Paper Contains Five Either OR type questions carrying 12 marks each with one question from each unit.

ELEMENTS OF ELECTRICAL ENGINEERING (EEE)

I / II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
EE101	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Understand the basic electrical circuits.

CO2: Understand the construction and operations of DC machines .

CO3: Understand the construction and operation of induction motors and AC Generators.

CO4: Understand the basics of illumination and earthing.

CO5: Understand the construction and operations of transformers

UNIT – I

DC Circuits:

Definition of Current, Potential, Resistance, Power and Energy, Symbol and Units. Ohm's law, Kirchhoff's laws, Solution of Series, Parallel and Series Parallel circuits. Analysis of circuits using loop current method and node voltage method. Source transformation. (elementary treatment only) (Simple problems only).

UNIT – II

Principles of AC Circuits:

Instantaneous, average, r.m.s and maximum value of sinusoidal wave. Concept of phase and phase difference. Phasor representation of sinusoidal wave, A.C through pure resistance, pure inductance and pure capacitance, Series R-L-C Circuits (Simple Problems). Power factor. Concept of 3-Φ system; Star and Delta connections; Voltage and Current relationship (no derivation) (Problems with R load only), (elementary treatment only)

UNIT – III

DC Machines:

Electromagnetic Induction, Faradays Law's, Lenz's Law and Flemings rules. Construction and working principle of a DC machine, emf equation of a D.C Generator, DC motor principle, voltage equation of generator and motor (elementary treatment only), (Simple Problems only).

UNIT – IV

Transformers:

Working Principle and Construction of 1-Φ Transformer, transformer ratio, emf equation. (elementary treatment only) (Simple problems).

Induction Motors:

Construction and principle of operation of induction motor, slip. (elementary treatment only) (Theoretical aspects only).

AC Generators

Construction, EMF equation, (elementary treatment only) (Theoretical aspects only).

UNIT – V

Illumination:

Units and laws of Illumination, Types of lamps, Incandescent lamps, Fluorescent lamps and Sodium-vapour lamps. (elementary treatment only)

Earthing:

Difference between neutral wire and earth wire, Concept of earthing, applications of fuse and MCB's, electrical shock, precautions against shock, treatment of electrical shock. (elementary treatment only)

Text Books :

1. V.K.Mehta and Rohith Mehta, “Basic electrical engineering”, S.Chand publishers, 14th edition.
2. M.S. Naidu and S. Kamakshaiah, “Introduction to Electrical Engineering”, Tata McGraw Hill Publishers, 1st edition, 2004.
3. B.L. Thereja, “Electrical technology-Vol-I & II ”, S. Chand Publishers, 23rd edition, 2004.
4. Dr.S.L.Uppal, “Electrical Wiring, Estimating and Costing”, Khanna publishers, 1st edition, 2008.

Reference Books :

1. H. Cotton, “Electrical Technology”, CBS Publishers, 7th edition, 2005.
2. Joseph Edminister, “Electric Circuits” Tata McGraw Hill Publishers, 5th edition, 2010.
3. K.B.Raina and S.K.Battacharya, “Electrical Design Estimating and Costing” New age publishers, 1st edition, 1991.
4. V.N.Mittle, “Basic electrical engineering”, Tata McGraw Hill Publishers, 2nd edition, 2005.

Web References:

1. http://nptel.ac.in/downloads/108105053/
2. https://www.electrical4u.com/
3. http://www.smps.us/references.html
4. https://www.facstaff.bucknell.edu/mastascu/eLessonsHTML/EEIndex.html

E-Text Books:

1. http://bookboon.com/en/electrical-electronic-engineering-ebooks
2. http://www.freeengineeringbooks.com/Electrical/Basic-Electrical-Engineering.php

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each.

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

BASIC ELECTRONICS ENGINEERING (BEE)

I/II Semester : Common for all Branches					Scheme : 2017			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
EC101	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs					End Exam Duration: 3 Hrs			

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

CO1: Understand the energy band diagrams and properties of intrinsic and extrinsic semiconductors and solve simple problems on conductivity

CO2: Understand concepts & applications of p-n junction diode, BJT, FET and MOSFET

CO3: Understand basic operation of special purpose diodes like LED and photo diode

CO4: Design various rectifier circuits and Voltage regulators using Zener diodes

CO5: Apply the basic knowledge of number systems, Boolean algebra and logic gates to solve problems on simplification and realization of Boolean equations and binary arithmetic.

CO6: Understand the concepts of adders, multiplexers,decoders,flip flops and memory devices.

UNIT – I

Semiconductor materials & their properties:

Classification of materials based on Energy Band Diagrams, Transport Phenomena in semiconductors -- mobility & conductivity, Electrons and Holes in intrinsic semiconductor, Donor and Acceptor impurities, Mass-action law, Charge densities in semiconductors, Drift current & diffusion currents, electrical properties of Ge and Si, Hall-effect.

UNIT – II

Semiconductor Diodes And Applications:

Open-circuited p-n junction, p-n junction as rectifier (forward bias Reverse Bias), Current components in p-n diode, Volt-Ampere(V/I) characteristics of p-n diode, Temperature dependence of V/I characteristics, Diode resistance, Piecewise linear diode characteristics, Break down mechanisms in semiconductor diodes- Avalanche breakdown & Zener breakdown, Zener diode characteristics, Zener diode as voltage regulator Rectifiers (without filters)- Half wave, Full wave, and Bridge rectifiers- their operation, performance characteristics, analysis and comparison, Theoretical concepts of LED, Photo diode working.

UNIT – III

Fundamentals of Bipolar Junction Transistor (BJT):

Construction, Operation of n-p-n and p-n-p transistors, Symbols, Transistor current components, Types of configurations- CB, CE and CC configurations and their characteristics, Definitions of α, β, and γ and their relations, Simple problems, Comparison of CB, CE and CC configurations, Transistor as an amplifier.

UNIT – IV

Field Effect Transistors:

Construction and operation of n-channel JFET, Circuit symbols for n and p-channel JFET, Drain characteristics, Parameters of JFET, Transfer characteristics of JFET, Comparison of JFET and BJT, Applications of JFET

UNIT – V

Digital Electronics:

Number Systems-Binary, Octal and Hexadecimal number systems, Conversions, Binary Arithmetic, Subtraction using 1's Complement & 2's Complement method, Boolean Algebra, DeMorgon's Theorems, Logic gates, Adders, Multiplexers, Decoders, Introduction to flip-flops – SR, JK, T and D flip flops, introduction to memory devices and their classification.

Text Books :

1. N.N Bhargava, D.C. Kulshrestha, S.C Gupta, NITTTR – Chandigarh, Basic Electronics and Linear Circuits, Mc Graw Hill Education (India), Pvt. Ltd.,
2. Albert Paul Malvino, Electronic Principles, Mc Graw Hill International edition
3. Morris Mano , Digital Logic and Computer Design, PHI.

Reference Books :

1. Robert Boylestad. Louis Nashelsky, Electronic devices. And circuit theory., PHI
2. David A. Bell, Electronic Devices and Circuits, Oxford University Press, 5th edition,2008
3. Millman Jacob, Christos Halkias, Satyabrata Jit, Electronic Devices and Circuits, TMH

Web References:

1. http://www.electronics-tutorials.ws/
2. http://nptel.ac.in/courses/117103063/
3. *www.electronicshub.org/tutorials/*
4. *engineering.nyu.edu/gk12/amps-cbri/pdf/Basic%20Electronics.pdf*

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

ENGINEERING MECHANICS (EGM)

I/II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
CE101	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

- **CO1 :** Calculate the resultant of different force systems
- **CO2 :** Determine the unknown forces in determinate structures using equilibrium conditions
- **CO3 :** Understand the concept of friction
- **CO4 :** Determine the axial forces in the members of determinate trusses
- **CO5 :** Locate the centroid of composite areas
- **CO6 :** Determine the moment of Inertia of composite areas
- **CO7 :** Compute the stresses and strains of axially loaded members, elastic constants of different materials

UNIT - I

Forces and Force Systems

Types of force systems – Resultant of coplanar, concurrent and non concurrent force systems – Concept of moment – Varignon's theorem.

Equilibrium of Systems of Forces

Equilibrium concept in mechanics – Free body diagram - Equilibrium of coplanar force systems

UNIT - II

Reactions in Beams

Types of loads, supports and beams – Support reactions for simply supported beams, cantilever and overhanging beams subjected to different types of loads.

Static Analysis of Simple Plane Trusses

Analysis of simple trusses by method of joints and method of sections.

UNIT - III

Static Analysis of Systems with Friction

Friction, impending motion, open belt friction, wedge friction and ladder friction, lifts by a simple screw jack with square threads

UNIT - IV

Central Points

Concept of first moment – Definition of centroid and centre of gravity – Centroid of composite areas.

Area Moment of Inertia

Moment of inertia for areas – Parallel and perpendicular axis theorems – Moment of inertia of compound sections – Radius of gyration.

UNIT - V

Mechanics of Deformable Solids

Mechanical properties of materials –Simple stresses and strains – Types of stresses – Hooke's law – Stress–strain curve for ductile material – Factor of safety and working stress.

Relation Between Elastic Constants

State of simple shear – Complimentary shear stress – Relation between Young's modulus, Rigidity modulus, Bulk modulus and Poisson's ratio

Text Books :

1. R.K. Bansal, "*A text book of Engineering Mechanics*", Laxmi Publications
2. B.C. Punmia, Ashok Kumar Jain and Arun Kumar Jain, "*Mechanics of materials*", Laxmi Publications.

Reference Books :

1. Thimoshenko & Young, "*Engineering Mechanics*", Tata McGraw–Hill Publications
2. Bhavikatti and Rajasekharappa, "*Engineering Mechanics*", New Age Intl. Publications
3. R.K.Rajput, "*Applied Mechanics*", Laxmi Publications.

Web References:

1.https//www.coursera.org

2.www.mathalino.com

3.www.nptel.ac.in/courses

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

ENGINEERING MATHEMATICS – II (EM2)

II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
BS102	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		2	1	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO1: Find the solution for simultaneous system of linear equations by rank of matrix, eigen values and eigen vectors. Reduce the quadratic form to canonical form

CO2: Determine the Fourier series of a function and its expansion

CO3: Understand the Fourier transforms and Z transforms

CO4: Utilize Numerical Methods and principles of least square methods in engineering problems

CO5: Use Partial differential equations and method of separation of variables in solving the one dimensional wave and Heat equations

UNIT - I

Matrices

Rank of a matrix, Consistency of systems of linear equations, Rouche's Theorem(Statement only). Eigen values and Eigen vectors, diagonalization of a matrix. Cayley -Hamilton Theorem, finding inverse of a matrix. Quadratic form, reduction of a quadratic form to canonical form by orthogonal transformation.

UNIT - II

Fourier Series

Determination of Fourier coefficients, Dirichlet's conditions. Fourier series of Even and Odd functions. Functions having points of discontinuity. Change of interval. Half –Range Fourier Sine and Cosine series.

UNIT - III

Fourier Transforms

Infinite Fourier Transforms, Fourier Sine and Cosine transforms. Finite Fourier Sine and Cosine Transforms, Inverse Fourier Transforms.

Z-Transforms

Z- Transforms, Inverse Z- Transformation, Properties, Damping rule, Shifting rule. Application of Z-Transforms to Difference equations.

UNIT - IV

Numerical Methods

Solution of Algebraic and Transcendental Equations – Method of False Position, Iteration method, Newton Raphson method. Solution of Simultaneous Equations – Gauss Seidel iteration method.

Curve Fitting – Least squares method. Fitting a straight line $y = a + bx$ and parabola $y = a + bx + cx^2$.

UNIT - V

Partial Differential Equations

Formation of Partial differential equations by elimination of arbitrary constants and arbitrary functions. Linear equations of first order – Lagrange's Linear equation. Applications - Method of separation of variables. One dimensional Wave equation, One dimensional Heat equation.

Text Books :

1. B.S. Grewal- Higher Engineering Mathematics. Khanna Publishers, 42nd Edition, 2012.
2. T.K.V.Iyengar and others -A Text Book of Engineering Mathematics, Vol 1-S.Chand & Company, 13th Edition 2014.

Reference Books :

1. B.V. Ramana -Higher Engineering Mathematics, TMH Publishers, 2nd Edition, 2006.
2. N.P.Bali and others -A Text Book of Engineering Mathematics, Lakshmi publishers, 7th Edition, 2009.
3. Erwyn Kreyszig -Advanced Engineering Mathematics, John wiley, 8th Edition 2006.

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

DATA STRUCTURES (DS)

II Semester : Common for all Branches					Scheme : 2017			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
		L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
CS103	Foundation	3	-	-	3	40	60	100
Sessional Exam Duration : 2 Hrs					End Exam Duration: 3 Hrs			

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

CO1: Understand the purpose of array data structure and its operations.

CO2: Understand the linked list data structure and its operations.

CO3: Explain the operations performed on stack data structure.

CO4: Explain the operations performed on queue data structure.

CO5: Understand the purpose of structures and files in C.

UNIT - I

Introduction to Data Structures

Definition,Classification of Datastructures, Linear and Non Linear

Sequential Storage Representation

Arrays, Operations on Arrays- Insertion, Deletion, Traversing; Applications of arrays–Linear Search, Binary Search, Bubble Sort, Selection Sort, Insertion Sort, Merging of arrays.

UNIT - II

Linked Storage Representation –Linked Lists

Linked storage representation using pointers, Types of Linked Lists–Single linked list, Doublelinked list, Operations on linked lists-Traversing, Searching, Insertion and Deletion.

UNIT - III

Linear DataStructures - Stacks

Representation of Stack using sequential storage and linked allocation methods, Operations on Stacks- Push, Pop, and Display.

UNIT - IV

Linear DataStructures - Queues

Representation of Queue using sequential and linked allocation, Operations on Queues- Insertion, Deletion and Traversing, Circular queue.

UNIT - V

Non Linear Data Structures-Trees

Basic terminology, Binary trees, Representation of Binary tree in memory using arrays and linked lists, Binary Search Trees, Operations on binary search trees-Insertion,Deletion and Recursive Traversals-Preorder, Inorder and Postorder.

Text Books :

1. Jean Paul Tremblay and Paul G.Sorenson[2007], An Introduction to DataStructures With Applications, TMH.
2. Debasis Samantha, Classic Data Structures Second Edition (2009), PHI.

Reference Books :

1. Pradip Dey, Manas Ghosh and Reema Tereja, Computer Programming and DataStructures, Oxford University Press.
2. S.K.Srivatsava and Deepali Srivatsava, Data Structures through 'C' in depth, BPB Publications.

Web References :

1. https://www.tutorialspoint.com/data_structures_algorithms
2. http://www.geeksforgeeks.org/data-structures

Question Paper Pattern:

Sessional Exam

The question paper for sessional examination is for 30 marks, covering half of the syllabus for first sessional and remaining half for second sessional exam. Question No 1 which carries 6 marks contains three short answer questions of two marks each. The remaining three questions shall be EITHER/OR type questions carrying 8 marks each

End Exam

Question Paper Contains Six Questions. Question 1 contains 5 short Answer questions each of 2 marks. (Total 10 marks) covering one question from each unit. The remaining five questions shall be EITHER/OR type questions carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. i.e there will be two questions from each unit and the student should answer any one question

PROFESSIONAL COMMUNICATION AND ENGLISH –II (PCE – II)

II Semester : Common for all Branches						Scheme : 2017		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
HU102	Foundation	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
		3	-	-	3	40	60	100
Sessional Exam Duration : 2 Hrs						End Exam Duration: 3 Hrs		

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

CO 1: Write Job Applications, Resumes and Statements of Purpose.

CO 2: Write Technical Reports, Proposals, Journal Papers and Project Reports.

CO 3: Write Business letters, Block letters, Memos and Emails.

CO 4: Comprehend General and Technical Content.

Course Content

1. Reading Comprehension/ Précis writing.
2. Writing Cover Letters for Job Applications, Resume Preparation
3. Profiling Companies
4. Statement of Purpose for Internships, Apprenticeships, Admissions in Universities
5. Writing Technical Reports and Proposals, Formats of Research Articles, Journal Papers, Project Reports
6. Email Writing
7. Writing Business Letters, Formats of Letters, Block Letters,Memos

Reference Books:

1. Sangeeta Sharma & Binod Mishra, Communication Skills for Engineers and Scientists, PHI Learning Private Limited.
2. Marilyn Anderson, Pramod K. Naya and Madhucchanda Sen, Critical Reasoning, Academic Writing and Presentation Skills, , Pearson Publishers.
3. M. Ashraf Rizvi, Effective Technical Communication, Tata McGraw-Hill Publishing Company Ltd., 2005.
4. Raymond V. Lesikar, Marie E. Flatley, “Basic Business Communication: Skills for Empowering the Internet Generation”, 11th Edition, Tata McGraw-Hill. 2006.
5. Dr A. Ramakrishna Rao, Dr G. Natanam & Prof S.A. Sankaranarayanan, “English Language Communication : A Reader cum Lab Manual”, Anuradha Publications, Chennai, 2006.

Question Paper Pattern:

Sessional Exam

I Sessional Examination – 30 Marks

1. Reading Comprehension – 5M
2. Profiling a Company – 5M
3. Statement of Purpose – 7M
4. Job Application – 8M
5. Technical Report / Project Report – 5M

II Sessional Examination - 30 Marks

1. Email Writing – 5M
2. Memo Writing – 5M
3. Précis Writing – 7M
4. Business Letter – 8M
5. Formats of Research Articles/ Journal Papers – 5 M

End Exam

1. Technical Report – 10M
2. Reading Comprehension – 5 Marks
3. Précis Writing– 5M
4. Job Application Letter – 10M
5. Profiling a Company/ Business Letter – 10 Marks
6. Statement of Purpose – 10 Marks
7. Email/Memo Writing – 10 Marks

COMPUTER PROGRAMING LAB (CPL)

I Semester : Common for all Branches					Scheme : 2017		
Course Code	Hours/Week			Credits	Maximum Marks		
CS102	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
	0	0	2	1	50	50	100

End Exam Duration: 3 Hrs

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

CO1: Execute programs using conditional and loop statements in C.

CO2: Develop programs using 1-Dimensional and 2-Dimensional arrays.

CO3: Perform Call by value, Call by reference and Recursion using functions

CO4: Implement programs using pointers, structures and files in C.

List of Experiments

1. Conditional Statements : Quadratic equations, usage of switch statement.
2. Loop Statements : Adam Number, Cosine series
3. Arrays : Max Min problem, standard deviation and variance.
4. Character Arrays : Palindrome, implementation of string handling functions.
5. Functions and Recursion : Matrix operations, Towers of Hanoi, GCD
6. Pointers : Interchanging problem, implementation of dynamic memory allocation.
7. Structures : Usage of structures in various applications.
8. Files : File operations and usage of files in various applications.
9 Assembling the hardware components and installation of OS

Reference Books :

1. Yashavanth P.Kanetkar , Let US C , BPB Publications, 7th Edition,2007.
2. B.W. Kernignan and Dennis M.Ritchie, The C Programming Language , (PHI), 2nd Edition 2003.

APPLIED PHYSICS LAB (APP)

I/II Semester : Common for all Branches					Scheme : 2017		
Course Code	Hours/Week			Credits	Maximum Marks		
BS104	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
	-	-	2	1	50	50	100

End Exam Duration: 2 Hrs

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

CO1: apply the knowledge of physics laboratory in measuring the standard values.

CO2: apply theoretical knowledge to experimental values.

List of Experiments

Note : At least 12 of the following experiments shall be conducted

1. Determination of size of small particles using a laser.
2. B-H curve to study the magnetic behavior of ferromagnetic materials.
3. Determination of Numerical Aperture of an Optical Fiber.
4. Verification of Faraday's Laws.
5. Determination of wavelength using a single slit.
6. Study of magnetic field along the axis of a circular coil (Steward Gees Apparatus).
7. LCR Series and Parallel Resonance.
8. Determination of wavelengths using a grating.
9. Hall Effect-determination of Hall coefficient and charge density.
10. Determination of radius of curvature of a plano-convex lens using Newton's rings.
11. Double refraction - determination of refractive indices of e-ray and o-ray.
12. Determination of small thickness by forming parallel fringes.
13. Determination of rigidity modulus by using torsion pendulum.
14. Determination of energy gap of a semiconductor by four probe method.

ENGINEERING CHEMISTRY LABORATORY (CHP)

I / II Semester : Common for all branches					Scheme :2017		
Course Code	Hours/Week			Credits	Maximum Marks		
BS106	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
	-	-	2	1	50	50	100

End Exam Duration: 2 Hrs

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

CO1: Understand and appreciate various analytical methods including instrumentation that acts as a tools in analysis of water.

CO2: Understand various analytical methods in analysis of an alloy.

CO3: Understand various analytical methods including instrumentation that acts as tools in analysis of different fuels.

List of Experiments

Note : At least 12 of the following experiments shall be conducted

Volumetric Analysis

1. Demonstration of analytical balance.
2. Preparation of standard sodium carbonate solution.
3. Estimation of magnesium by EDTA titration.
4. Estimation of copper by EDTA titration.
5. Estimation of total and permanent hardness of water by EDTA titration method.
6. Estimation of copper in brass alloy.
7. Estimation of dissolved oxygen by Winkler's method.
8. Estimation of iron using diphynylamine indicator by dichrometry.

Instrumentation

9. Determination of calorific value of a solid fuel using Bomb calorimeter.
10. Determination of viscosity of lubricating oil using Engler's viscometer.
11. Determination of viscosity of lubricating oil using Redwood viscometer.
12. Determination of strength of mixture of acids (HCl and CH_3COOH) by conductometric titrations.
13. Verification of Beer-Lamberts law using colorimeter.
14. Potentiometric titrations.
15. Determination of simple eutectic of two component system.

PHONETICS AND COMMUNICATION SKILLS LAB (PCP)

I/II Semester : Common for all Branches					Scheme : 2017		
Course Code	Hours/Week			Credits	Maximum Marks		
HU103	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
	0	0	2	1	50	50	100

End Exam Duration: 2 Hrs

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

CO1: Speak internationally intelligible English without mother tongue accent.

CO2: Adopt appropriate intonation patterns for effective oral communication.

CO3: Identify International Phonetic Symbols to find the pronunciation of new words.

CO4: Speak in English confidently, fluently and effectively.

CO5: Exhibit team playing and leadership skills.

List of Experiments

Phonetics Laboratory

Focus in the lab is on accent neutralization for international intelligibility

1. Introduction to English Phonetic Symbols and associated sounds.
2. Practice in Consonant sounds
3. Practice in Vowels and Diphthongs
4. Practice in Accent, Rhythm and Intonation

Communication Skills Laboratory

Focus in the lab is more on fluency than on accuracy

1. Inter-personal Communication

a) Self Introduction

b) Introducing Others

c) Non-Verbal Communication

d) Posture, gait and body language.

2. Communication in Formal Situations

a) Public speaking – Extempore, Prepared Speech

b) Role-play

c) Situational Dialogues

d) Sell-out

e) JAM

f) Telephone etiquette

Reference Books :

1. Exercises in Spoken English Part – I, Part – II & Part – III Published by Central Institute of English and Foreign Languages, Hyderabad.
2. A Course in Phonetics and Spoken English, Dhamija Sethi, Prentice Hall of India, Pvt Ltd.
3. T. Balasubramanyam , A.Text Book of English Phonetics for Indian Students, Macmillan India Ltd.,
4. Krishna Mohan and Meera Benerjee , Developing Communication Skills , Macmillan India Ltd.,
5. D.Souza Eunice and Shahani. G , “Communication Skills in English” , Noble Publishing House

ENGINEERING WORKSHOP (EWP)

I /II Semester : Common for all branches					Scheme : 2017		
Course Code	Hours/Week			Credits	Maximum Marks		
ME102	L	T	P	C	Continuous Internal Assessment	End Exam	TOTAL
	0	0	2	1	50	50	100

End Exam Duration: 3 Hrs

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

CO1: To understand the usage of tools and equipments in fitting, carpentry, house wiring, soldering, foundry and smithy.

CO2: To prepare of simple models in carpentry, fitting and smithy

CO3: To prepare sand mould using foundry tools

CO4: To do soldering of circuit boards and

CO5: To give electrical connections in house wiring.

LIST OF EXPERIMENTS

Introduction to tools and equipment used in each trade

Cycle – I (Carpentry)

1. Dovetail joint
2. Mitre-faced Bridle joints
3. Mortise and Tenon joint

Cycle – II (Fitting)

1. V – fitting
2. Stepped fitting
3. Half round fitting

Cycle – III (Black smithy and Foundry)

1. Making Round to square cross section
2. Making eye bolt
3. Preparation of mould with split piece pattern.

Cycle – IV (House wiring)

1. One bulb controlled by one-way switch and two-way switches.
2. Two bulbs in series and parallel
3. Wiring for a water pump with single phase starter.

Cycle – IV (Soldering)

1. Soldering Practice
2. Soldering Resistances in Series
3. Soldering Resistances in parallel

Student has to perform at least two jobs from each trade.

Reference Books :

1. P. Kannaiah and K.L. Narayana [2010], " Workshop Manual ", Second Edition, Scitech Publication , Chennai
2. K.Venkata Reddy [2003],"First year Workshop manual", Bhagyasri Publishers, Tirupathi
3. Hazrachowdhury and S.K. Bose [2003], "*Workshop Technology Vol.1",*Media Promoters and Publication, New Delhi.

DATA STRUCTURES LAB (DSP)

II Semester : Common for all Branches					**Scheme : 2017**		
Course Code	**Hours/Week**			**Credits**	**Maximum Marks**		
CS104	**L**	**T**	**P**	**C**	**Continuous Internal Assessment**	**End Exam**	**TOTAL**
	0	**0**	**2**	**1**	**50**	**50**	**100**

End Exam Duration: 3 Hrs

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

CO1: Use Arrays to store similar data and perform searching and sorting operations.

CO2: Understand the operations performed on Linked List.

CO3: Implementation of Stack and queues using static and dynamic allocation.

List of Experiments

1. Array Data Structures: Array Operations and merging.
2. Applications of Array Data Structures : 1. Searching – Linear and Binary
   2.Sorting –Bubble, Insertion, Selection
3. Linked List: Implementation of various operations for Single and Double Linked List.
4. Stack Data Structure: Implementation of stack operations using static and dynamic allocation.
5. Queue Data Structure: 1. Implementation of Circular Queue using static allocation.
   2. Implementation of Queue operations using dynamic allocation

Reference Books :

1. Yashavanth P.Kanetkar , Let US C , BPB Publications, 7th Edition,2007.
2. B.W. Kernignan and Dennis M.Ritchie, The C Programming Language , (PHI), 2nd Edition 2003.