VEER NARMAD SOUTH GUJARAT UNIVERSITY

SCHEME OF TEACHING EXAMINATION AT B. E. I (ALL BRANCHES)

SECOND SEMESTER

Sr. No.	Subject	Code	Teaching Scheme	
1	2	3	4	
			L P	D + TA
			Hour Per Week	
01.	Mathematics - II	ASM 201 AD	3	0+1
02.	Engineering Drawing	MED 202 AD	2	4+0
03.	Basic Civil Engineering	CED 203 AD	3	2+0
04.	English and Communication Skill	ASH 204 AD	2	0+0
05.	Electrotechniques (Offered to first half Division)	ELE 205 AF	3	2+1
05A	Engineering Physics (Offered to first half Division)	ASP 105 AS	3	2+0
06.	Computer Fundamental and Programming (Offered to first half Division)	CMP 206 AF	2	2+0
06A	Engineering Chemistry (Offered to first half Division)	ASC 106 AS	3	2+0
07.	Workshop Practice	MED 207 AD	-	4+0
	Total for first half of Division		**15**	**16**
	Total for Second half of Division		**16**	**15**
	GRAND TOTAL		**31**	**Hours**

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B. E. I SEMESTER-I, II

ASC 106 AF, ASC 106 AS ENGINEERING CHEMISTRY

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	0	2	3	100	30	20	150

THEORY

1. water:
   Sources, impurities, hardness, estimation and units, treatment for (I) boiler feed water and(ii)potable water, desalination of brackish water.
2. Cement:
   Manufacture, main constituents, setting and hardening of Portland cement, heat of hydration, RCC decay and protection.
3. Pollution:
   Types, sources, effect and control of air water pollutants, sewage, BOD, COD, Waste water treatments
4. Polymers:
   Chain and step polymerization, mechanisms of chain polymerization, resins & plastics, thermoplasts and thermosets, moulding methods, structures and uses of PE, PP, PVC, VC, - VA copolymer, PMMA, PTFE, Phenoplast, amino resins, polyester, nylon, epoxy, silicon resin and polyurathene.,No. of average molecular masses.
5. Corrosion:
   Dry & wet their mechanisms, causes and remedial measures of galvanic crevice, pitting and stress corrosion, corrosion control-surface preparation, Zn & Sn coatings, cathodic & anodic protection, inhibitors and paints.
6. Only types and use of:
   Insulators, semiconductors, lubricants, abrasives, adhesives, composite materials, glasses, refractories and non-ferrous alloys.
7. Outline of instrumental methods of chemical analysis:
   pH-metry, potentiometry, conductometry, polarography, visible spectrophotometry and flame photometry.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :

Based on the theory course prescribed above.

REFERENCES :

1. M. Jain & Jain :- Engineering Chemistry, Dhanpat Rai & Sons publications, 1995
2. C. V. Agraval, Chemistry of Engineering materials, Tara Book Agency, 1990
3. Chatwal & Anand, Instrumental Methods Of Chemical Analysis, 199

VEER NARMAD SOUTH GUJARAT UNIVERSITY

B. E. I SEMESTER-II

ASM 201 AD MATHEMATICS -II

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	1	0	3	100	-	-	100

THEORY

1. Calculus:
Reorientations, functions of several variables, eulers theorem, chain rule, applications: maxima & minima, errors and approx., series expansions, tangent planes, and normal lines, transformation and jacobians.

2. Ordinary differential equations(Higher order):
Re-orientation: solutions of linear ode of nth order with constant coefficients, complimentary functions, auxiliary equations having real or complex, distinct or repeated roots, particular integrals, general methods, rules for finding P. I. For special forms via. A^n , $\cos^{ign}$ (ax+b), X^m, $V(X)e^{ax}$, XV(X) including cases of failure, solution of nth order ode with variable coefficients of homogeneous type (euler and cauchy equation).
Modelling of real word problems particularly engineering system, second order differential equations, Models in particular LCR networks, bending of beams, detection of diabetes.
Methods of variation of parameters, solution in series, regular points, regular singular points, frobencies methods of solutions, bessel and legendra different equations introduction to P_n (X) and J_n (X).

3. Numerical Methods:
Motivation solution of algebraic and trancendential equations, bisection, false position, itteration, Newton Raphson methods.

4. System of linear equation:
Gauss elimination, guass seidel, guass Jordan and Jacob's methods.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. Kreszig E.: Advanced Engineering Mathematics Wile, 1989.
2. Thomar G. B.: Calculus and analytical geometry, Narosa, 1989.
3. Srivastava R.S.L.: Engineering Mathematics Vol.-I TMG Publ., 1980.
4. C.Raywyilie: Advanced Engineering Mathematics (International 6th edition, McGraw Hill, 1995.
5. Alan Jeffrey : Essentials of engineering mathematics, champman Hall,1992.
6. J. N. Kapur: Mathematical Modelling, Willey Easternltd., 1989.

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B. E. I SEMESTER-II

MED 202 AD ENGINEERING DRAWING

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
2	0	4	3	100	30	20	150

THEORY

1. Orthographic projections of solids: Study of Indian standard for engineering. Drawing simple solids like prism, cube , cylinder, cone, pyramid, sphere etc. With varying position of axis with reference to principle plane, auxiliary plane, section of solid mention above, interpretation of orthographic views and drawing of missing views, simple machine parts such as plumber blocks, brackets, fixtures etc.
2. Isometric projections: Principle of isometric projection, isometric views of simple Solid and simple machine parts.
3. Development and Interpretation: Interpretation of simple solid such as cone, cylinder, prism and pyramid, curves of intersection, development of surface of simple solid and interpenetrating solids, problems of industrial pipelines, hoppers, funnels and tanks.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. K. L. Gopalkrishna: Engineering Drawing, subhash publication, 1995.
2. N. D. Bhatt: Engineering Drawing, Charotar publishing, 1889.
3. K. L. Narayana, P.Kannaiah: Engineering Graphics, Tata McGraw Hill, 1998.
4. K. Venugopal: Engineering Drawing made easy, Wileyeastern, 1993.
5. P.J. Shah: A text book of Engineering Drawing Vol. I & II,C. Jamnadas & Co., 1991
6. Thomas E.French, Charles J. Vierck, J. Foster: Engineering Drawing and Graphics technology, Tata McGraw Hill, 1987.

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B. E. I SEMESTER-II

CED 203 AD BASIC CIVIL ENGINEERING

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	0	2	3	100	30	20	150

THEORY:

1. Introduction of civil engineering, relation of civil engineering to other branches of engineering.

2. Surveying and measuring techniques, need and type of surveys, conventional signs, linear distance measurement through chain & tapes, angle measurement with compass, notation of bearings, concept of contours and contours surveys and contour mappings.

3. Introduction of buildings, building components such as foundations, Masonary work, different types of doors, windows, flooring.
Basic building materials such as stones, bricks, mortar, concrete, wood and important properties.
Reading of building and plant layout, basic types of roads, adopted for different purposes.

4. Concepts of environment and ecosystems, impact on environment, types of pollution and remedial approaches

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. Shanmungam & Palaniswmy: Basic Civil Engineering, TMG Publication ,1995.
2. Basak: Surveying & leveling, TMG Publication ,1994.
3. G. S. Birdi: Basic Civil Engineering, Dhanpatrai & sons publication ,1994.
4. Kanetkar & Kulkarni: Surveying & Leveling, Published By Pune Vidyarthi, Griha, Pune, 1981.
5. Sharma & Kaul : A textbook of building conctruction, S. Chandi & Co., 1990.
6. Dix. H. M.: Environmental Pollution atmosphere, land, water & noise, John Wiley & Sons. 1981.

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B. E. I SEMESTER-II

ASH 204 AD ENGLISH & COMMUNICATION SKILL

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
2	0	0	2	50	-	-	50

THEORY

1. Spoken English:
Following communicative functions to be discussed in meaningful natural dialogue forms: Greetings, Introductions, making requests, suggestions, stating likes & dislikes, agreeing & disagreeing, stanting performances, conversing on the telephones, inquiries, complaints complements, encouragement, expressing thanks and appologies, etc.
(Audio visual aids could be used for the above).

2. Written English:
Business letters: Structure of business letter, essential a good business letters. Letter of inquiry, complaints, request etc. Report writing on general as well as scientific topics. Writing formal speeches for occasions , like inauguration, introduction of guests, etc., recording and drafting of minutes of meeting.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. Krishna mohan & Meera banerji: Developing Communication Skills, McMillan Co., Publication 1990.
2. N. Krishnaswamy & T.Shriram: Creative English For Communication, McMillan Co., Publication 1992.
3. King & Cree: Modern Business Letters, Orient leng man Publication, 1990.
4. M.I. Joshi: Let's talk English, Gajjar Prakashan Ahemdabad, 1995.

Section -I [English]	Marks	Section -II Communication Skill	Marks
Short answer question	10	Communication function(Dialogue writing)	10
essay type question	10	Letters of inquires, Complaints etc.	05
Short Notes	05	Report writing	05
-	-	Speech writing	05
Total:	**25**	**Total:**	**25**

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B. E. I SEMESTER-II

ELE 205 AF/ELE 205 AS ELECTROTECHNIQUES

Teaching Scheme			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
(No. Of Contact hr.)			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	1	2	3	100	30	20	150

THEORY

1. **Electrostatics :-** Coloumb's law, Electric field, gauss theorem and its application, potential gradient, point charge & charge sphere, capacitance conocentric spheres, parallel plates co-axial cylinders and parallel conductors, capacitors, capacitors in series and parallel, capacitance with composite dielectrics, Electric field energy.
2. **Electromagnetics :-** Ampere's law, Magnetic flux and flux density, magnetic field strength due to straight conductor and circular coil, field strength due to solenoid , magnatomotive force, magnetic circuit calculations, magnetic leakage, magnetic hysteresis and eddy current losses, steinmetx law , magnetic field energy, lifting power of magnet. Electromagnetic induction: Faraday's law and lenze's law, Dynamically and satirically induced F, self and mutual inductance.
3. **Network Theorems :-** Kirchhof's law- Loop And Node methods of analysis, superposition, thevenin and reciprocity theorems, Star and Delta transformation, compensation and Norton's theorems, maximum power transfer theorem.
4. **R-L-C Circuits :-** Alternating voltages and current and their graphical representations, average and effective values from factor, phase difference, power and power factor, purely resistive inductive and capacity circuits, R-L, R-C, R-L-C series circuits, impedance and admittance, circuits in parallel, series and parallel resonance, locus diagram for series curcuits. Complex algebra and its application to circuit Analysis
   Poly Phase circuit: Balanced two phase and three phase systems, star and mesh connections, calculation of balanced three phase networks, poly phase vector diagram, measurement of power in three phase circuits.
5. **Electrical Wiring :-** Various types of residential wiring circuits as simple parallel circuits, staircase wiring, godown wiring etc.,simple industrial wiring and testing as per electricity rules.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. V. N. Mittle: Basic Electrical Engineering, Tata McGraw Hill, Publishing Co. Ltd.
2. H. Cotton :Advanced Electrical Technology, Pitman publication.

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B. E. I SEMESTER-II
ASP 105 AS ENGINEERING PHYSICS

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	0	2	3	100	30	20	150

THEORY

1. Thermodynamics:
First law of thermodynamics and its applications, reversible and irreversible processes, second law of thermodynamics, Entropy and its calculations in reversible and irreversible processes, Entropy and disorder, Enthalpy and free energy.

2. Electromagnetism:
Amperes theorem and its application to determine magnetic induction in case of
(i) A standard conductor carrying current, (ii) Solenoid & (iii) Toroid
Lorenz force, Hall effect in metals, high energy particles accelerators, cyclotron,betatron.
Gauss's law of magnetism, types of matters magnetism, diamagnetism, paramagnetism, nuclearmagnetism, three magnetic vectors.

3. Optics:
Spatial and temporal coherence, interference by division of wave front and amplitude, interference by thin films, measurement of film thickness, Michelson's interferometer and light propagation, Fresnel and Fraunhoffer, Fraunhoffer diffraction at double slits, multiple slits and circular aperture, rayleigh criterion, resolving power of grating, telescope and prism, polarization, polarizing sheets, Malus law, polarization by reflection , Brewster's law, polarization by double refraction, circular and elliptical polarization by scattering of light, Huygen's theory for uniaxial and biaxial crystals.

4. Modern Physics:
Source of light , cavity radiators, spectrum power distribution, Wien's rayleigh, Jaans and Plank's law, Dual nature of matter and radiation, photoelectric effect, Einstine's photoelectric equation, compton's scattering De Broglie waves, Wave and group velocity, uncertainty principle.
X-Ray , X-Ray diffraction and bragg's law, Quantum physics of hydrogen atom, Bohr's postulates and applications in explanation of hydrogen spectrum, Bohr's correspondence principle, Frank and hertz's experiments

5. Laser Physics:
Stimulated and Spontaneous emission, Einstein's A and B coefficients, optical pumping and population inversion, different lasers, gas, solid state lasers (He-Ne Lasers and Ruby lasers) and application in holography.

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B. E. I SEMESTER-I, II

CPM 206 AF/ CPM 206 AS

COMPUTER FUNDAMENTALS & PROGRAMMING

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
2	0	2	2	50	30	20	100

THEORY

1. Fundamentals of Computers:
Basic elements of computer systems input devices, out put devices, processors and memory concept of hardware and software, programming languages, high level and low level programming languages, need of an operating system, internal and external commands, overview of typical operating system.

2. C- Programming languages:
Introduction to C- Programming language, identifiers and keywords, data types, constants and variables, Declarations and statements, representation of expressions, operations and library functions, data input and output statements, functions, arrays and pointers arithmetic, one & two dimensional arrays, pointer representations of arrays, introduction of structures, random & sequential files, File handling in -C.

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

REFERENCES :

1. Gottfried B. S.: Programming with C, Schaum's outline series, TMG publication 1994.
2. Rajaram V.: Fundamentals of Computers, prentice Hall publication, 1994.
2. Kernigham & Ritchie: The C programme language, prentice Hall publication, 1934.
4. Garry bronson 7 stephen menconi: A first book of ANSI - C: fundamentals of C Programming, Jaico publication. 1993.
5. Mullish & Kapoor: The spirit of C, Jaico publication.1994.

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B. E. I SEMESTER-II

MED 207 AD WORKSHOP PRACTICE

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
-	-	4	-	-	60	40	100

THEORY :- NIL

PRACTICALS / DRAWING + TUTORIAL ASSIGNMENTS :
Based on the theory course prescribed above.

1. Introduction and demonstration of various trades such as a carpentry, fitting , smithy, foundry, machine shop, welding etc., use of hand tools in various trades.

Specified jobs in carpentry, tilting and smith shop

REFERENCES :

1. H.S. Bawa: Workshop Technology , Tata Mcgraw Hill Publication co. Ltd., 1995.
2. S. K. Hajra Chaudhary: Elements Of Workshop Technology, Vol.-I Asia publishing house. 1988.
3. W.A.J. Champan: Workshop Technology, ELBS Lowprice Textbook Edward Donald Pub. Ltd., 1961.
4. Gupta K. N. & Kaushish J.P.: Workshop Technology, Vol. I,II, Delhi New Height Pub. 1991.
5. Raghuwanshi B.S.: Course In Workshop Technology, Delhi, Dhanpatrai & Sons 1991.
6. Tejwani V. K.: Basic Machine Shop Practice Vol., I & II , New Delhi, Tata Mcgraw Hill Publication Co. Ltd., 1989.
7. Arora B. D.: Workshop Technology, Vol., I & II , New Delhi, Satya Prakashan, 1981.