CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY

Courses of Study and Scheme of Examination of B.E. First Year (2005-06)
Common to all branches of Engineering except Bio-Tech. & Bio-Medical Engg.

FIRST SEMESTER

S.No	Board of Study	Subject Code	Subject	Periods Per Week			Scheme of Examination Theory			Total Marks	Credit [L+[T+P]]/2
				L	T	P	ESE	CT	TA		
1	Humanities	300111(46)	Language (Professional communication in English)	2	1	-	80	20	20	120	3
2	Basic Sciences	300112(11)	Applied Chemistry	3	1	-	80	20	20	120	4
3	Basic Sciences	300113(15)	Applied Physics-I	3	1	-	80	20	20	120	4
4	Basic Sciences	300114(14)	Applied Maths-I	4	1	-	80	20	20	120	5
5	Elect. Engg.	300115(24)	Basic Electrical Engg.	4	1	-	80	20	20	120	5
6	Mech. Engg.	300116(37)	Engg. Mechanics	3	1	-	80	20	20	120	4
7	Basic Sciences	300121(11)	Applied Chemistry LAB	-	-	2	40	-	20	60	1
8	Elect. Engg.	300122(24)	Basic Electrical Engineering LAB	-	-	2	40	-	20	60	1
9	Mech. Engg.	300123(37)	Engg. Mechanics LAB	-	-	2	40	-	20	60	1
10	Mech. Engg.	300124(37)	Workshop	-	-	6	40	-	20	60	3
11	Humanities	300125(46)	Communication Skills	-	-	2	-	-	40	40	1
12			Library	-	-	1	-	-	-	-	-
TOTAL				**19**	**6**	**15**	**640**	**120**	**240**	**1000**	**32**

L-Lecture, T-Tutorial, P-Practical, ESE – End Semester Exam, CT- Class Test, TA- Teacher's Assessment

Note: (i) The teaching in the 1st and 2nd semester will be divided in two groups consisting of various branches as shown below: P1-GROUP: Electronics & Communication, Information Technology, Electronics & Instrumentation, Electrical, Chemical, Electrical & Electronics; Q1-GROUP: Computer Science, Mechanical, Civil, Mining and Applied Electronics & Instrumentation, Metallurgy.

(ii) Applied Maths - I will be taught to both the groups.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Language (Professional Communication in English)**   Code: 300111 (46)
Total Theory Periods: 28   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit – I
Some Key Concepts
Process and Elements of Communication: context of communication; the speaker/writer and the listener/reader; Medium of communication; Principles of communication (7 C's of communication); Barriers in communication, effective communication; Communication in organization.
[No. of Periods: 6+2]

Unit – II
Writing
Selecting material for expository, descriptive, and argumentative pieces; Resume; covering letter, Elements of letter writing and style of writing, business letters: Quotation and Tenders; Basics of Informal and Formal Reports-technical report writing, lab report; Précis writing.
[No. of Periods: 6+2]

Unit – III
Reading
Effective Reading; reading different kinds of texts for different purposes; reading between the lines. Comprehension of Unseen Passages.

Grammar in use: Errors of Accidence and syntax with reference to Parts of Speech; Agreement of Subject and Verb; Tense and Concord; Use of connectives, Question tags. Voice and Narration. Indianism in English: Punctuation and Vocabulary, Building (Antonym, Synonym, Verbal Analogy and One Word Substitution).
[No. of Periods: 6+2]

Unit – IV
Speaking
Achieving desired clarity and fluency; effective speaking; task-oriented, inter-personal, informal and semi-formal speaking.
Meetings, Seminar, Conferences, Interviews, Presentation, Audio-visual communication.
[No. of Periods: 6+2]

Unit – V
Listening
Achieving ability to comprehend material delivered at relatively fast speed; comprehending spoken material in Standard Indian English, British English and American English; Intelligent listening in situations. Advantages of listening. Hearing and Listening; Essentials of Good Listening. Use of Modern Communication Devices; Telephonic Conversation.
[No. of Periods: 6+2]

Name of the Text Books:
- Sharma RC & Mohan K – "Business Corresponding and Report Writing", Tata McGraw Hill, New Delhi, 1994.
- Alok Jain, P S Bhatia & A M Shiekh – "Professional Communication Skills; S. Chand & Company Ltd. 2005.
- Rajendra Pal and JS Korlahalli – "Essentials of Business Communication", Sultan Chand & Sons, 1997.
- A guide to Correct English – Oxford University Press, Ely House, London W.I., Latest Edition. (For Unit III)

- English Sentence Structure by T.C. JUPP, and JOHN MILNE, ELBS edition published by Heinemann Educational Books Ltd. – Latest Edition. (For Unit III)

Name of the Reference Books:
- Fiske, john – "Introduction to Communication Studies", Rotledge London, 1990.
- Geoffrey Leech & Jan Svartvik – "A Communicative Grammar of English", ELBS Longman, England.
- Bill Scott – "The Skills of Communicating", Jaico Publishing House, Mumbai, 2004.
- Gartside L- "Model Business Letters", Pitman, London, 1992.
- Krishna Mohan & N. P. Singh – "Speaking English Effectively"; MacMillan India, New Delhi; 2001.
- 100 Tests in VOCABULARY; Indian Institute of Publishing, Chennai.
- Communication skills for technical students, book-I; July 1995; compiled by the Curriculum Development Centre, TTTI, Western Region, Bhopal; Somaiya Publications Pvt. Ltd. New Delhi.
- A Prelude to English by L. A. HILL, Oxford University Press, Madras-Latest Edition.
- The English Errors of Indian Students by T.L.H. Smith – Pearse, I.E.S., Oxford University Press, Madras- Latest Edition.
- Grammar and Composition by P.R. Sarkar, Anand Marg Publications, Kolkata

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Applied Chemistry**   Code: 300112 (11)
Total Theory Periods: 40   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit – I
Water: Specifications for water, analysis of water alkalinity, hardness. Water for domestic use, water softening processes – Lime – Soda process, Zeolite and ion exchange method, boiler feed water, boiler problems-scale, sludge, priming and foaming, caustic embitterment and corrosion, their causes and prevention, removal of silica, removal of dissolved gases, carbonate and phosphate conditioning, colloidal conditioning, calgon treatment, Numerical problems on Lime-Soda process, Zeolite and Ion exchange method.

[No. of Periods: 8+2]

Unit – II
Fuels: Classification, combustion and chemical principles involved in it, calorific value: gross and net calorific values and their determination by bomb calorimeter.
Solid Fuels: Proximate and ultimate analysis of coal and their importance, High and low temperature carbonization, Coke. Its manufactures by Otto Hoffman oven.
Liquid Fuels: Petroleum: its chemical composition and fractional distillation, knocking and chemical structure, octane number and cetane number and their significance, power alcohol, Analysis of flue gases by Orsat's apparatus, Numerical on calorific value, combustion, proximate and ultimate analysis of coal.

[No. of Periods: 8+2]

Unit – III
Corrosion: Types of corrosion (dry, wet, atmospheric, galvanic and concentration corrosion), theories of corrosion, protective measures against corrosion, factors affecting corrosion, pitting corrosion, water line corrosion, underground corrosion, stress corrosion, micro biological corrosion, corrosion fatigue.
Batteries and Battery Technology: Primary cells, secondary batteries reserve batteries, fuel cells, solar cells.

[No. of Periods: 8+2]

Unit – IV
Portland Cements Introduction, types of Portland Cement, methods of manufacturing (dry and wet process), properties of cement, haracterization of constitutional compounds of cement, ISI specification.
Lubricants: Classification of lubricants and mechanisms of lubrication.
Polymers: Industrial applications of thermoplastic, thermosetting, polymers, properties and applications of the major polymers viz polyethylene, Teflon, PVC, nylon, phenol formaldehyde. Elastomers, Natural Polymers.

[No. of Periods: 8+2]

Unit – V
Introduction to Important Industrial Chemicals:
Industrial Method of preparation (one each), properties and major industrial uses of following chemicals: Ammonium Chloride, Ammonium Nitrate, Ammonium Sulphate, Bromine, Calcium Phosphate (Monocalcium Phosphate, Super phosphate), Chromic Acid (Chromium trioxide, Chromic anhydride), Acrylonitrile, Benzene (Benzol), Butyl Acetate, Caprolactam, Carbon Tetrachloride, Cellulose Acetate, Cresol (Crysylic Acid), Chloroform (Trichloromethane), Ether (Ethyl Ether), Ethyl Alcohol (Ethanol, Industrial Alcohol), Glycerine (glycerol), and Melamine.

Explosives and Propellants:

Characteristics of Explosives, Oxygen Balance, Classification of Explosives: Primary or Initiating Explosives or Detonators; Low Explosives or Propellants; High Explosives, Preparation and Applications of Explosives, Rocket Propellants, Characteristics of a Good Propellant, Classification of Propellants.

[No. of Periods: 8+2]

Name of Text Books:
1. A Textbook of Engineering Chemistry by S.S. Dara (S. Chand and Company).
2. Engineering Chemistry by P.C. Jain (Dhanpat Rai publishing company)

Name of Reference Books:
1. Chemistry in Engineering and Technology (Vol-2) by J. C. Kuriacose, J. Rajaram (Tata McGraw Hill).
2. Engineering Chemistry by M.M. Uppal, Revised by S.C. Bhatia (Khanna Publishers).
3. Engineering Chemistry by B. K. Sharma(Krishna Prakashan).

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Applied Physics - I**   Code: **300113 (15)**
Total Theory Periods: **40**   Total Tutorial Periods: **12**
Total Marks in End Semester Exam: **80**
Minimum number of class tests to be conducted: **02**

Unit – I
Theory of Relativity:
Space, time and motion, frame of reference, Galileo's principle of relativity. Michelson-Morely experiment, Special theory of Relativity, transformation of space and time, Time dilation, Doppler effect, length contraction, twin paradox, Relativistic mass, Variation of mass with velocity, kinetic energy, equivalence of mass and energy. Relation between energy and momentum.

[No. of Periods: 8+2]

Unit – II
Geometrical Optics and Acoustics
   (i)   Geometrical Optics: Combination of thin lenses, Cardinal points of coaxial system of thin lenses, location and properties of Cardinal points, Newton's formula.
   (ii)   Acoustics: Magnetostriction oscillator and Piezo-electric oscillator for production of ultrasonic waves, determination of wavelength of Ultrasonic waves and its engineering applications, Basic requirements for an acoustically good hall. Reverberation and Sabine's formula for reverberation time, Absorption coefficient and its measurement, Factors affecting architectural acoustics and their remedy.

[No. of Periods: 10+2]

Unit – III
Wave Optics
Wedge shaped films, Interference by division of amplitude: Newton's rings, Interference by division of wave front: Fresnel's biprism, fringe width, Diffraction at single slit, diffraction grating. Resolving power of grating, Polarisation by reflection (Brewster's law), refraction, double refraction (only introduction).

[No. of Periods: 6+2]

Unit – IV
Digital Electronics
Number system used in digital electronics: decimal, binary, octal, hexadecimal. Conversion of decimal, binary, octal & hexadecimal to one another and vice versa. Addition, subtraction, multiplication, division, 1's, 2's compliment and use in subtraction, AND, OR, NOT, NAND, NOR, EX-OR gates & their representation. Logic symbols, Equivalent simplified switching circuits & truth table. Law of Boolean algebra. De Morgan's theorems & De Morganization, implementations of Boolean expressions using gates, NAND Gate and NOR Gate as universal gates, AND, OR, NOT, EX-NOR logic operation using NAND gates or NOR gates.

[No. of Periods: 6+2]

Unit – V
Quantum Physics
De Broglie's wave length, Davisson and Germer's experiment, Compton Effect, Quantisation of atomic energy, Electron spin, concept of wave packet & their properties, wave function & probability interpretation, Heisenberg's Uncertainty Principle, its elementary proof and applications. Duane-hunt limit for continuous X-rays, Moseley law of characteristic X-rays.
Bragg's law of X-ray diffraction. Bragg's X-ray spectrometer. Electron optics:Bethe's law, Electric and magnetic focusing Devices: CRT

[No. of Periods: 10+2]

Name of the Text Books:

1. Gaur and Gupta "Engineering Physics"
2. Beiser, "Modern Physics", McGraw-Hill Inc., New Delhi.
3. Avadhanulu and Kshirsagar "Engineering Physics".

Name of the Reference Books:

1. Jenkins and White: "Optics", McGraw-Hill Book Company.
2. Singh R. B.: "Physics of Oscillations and Waves"
3. Ghatak A.K.: "Optics"
4. Mani and Mehta: "Modern Physics", Affiliated East-West Press Pvt. Ltd., 1998.
5. Sanjeev Puri: Modern Physics, Narosa Pub.Co. 2004.
6. Azroff: Solid State Physics, Tata McGraw-Hill, 2004.
7. Kaplan: Nuclear Physics, Narosa Publishing, 1987.
8. Theraja: B. L., Basic Electronics, S. Chand, 2002.
9. Puri: Digital Electronics, Tata McGraw-Hill, 2002.
10. Millman, J and Halkias: Integrated Electronics, Tata MeGraw-Hill, 2004.
11. Tyagrajan and Ghatak: Lasers, Macmillan, 2001.
12. Keiser: G Optical fiber Communication, McGraw-Hill, 2000.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Applied Maths - I**   Code: **300114 (14)**
Total Theory Periods: 50   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit – I
Matrices
Rank & inverse by elementary transformation; system of linear equations; eigen values & eigen vectors; Caley-Hamilton Theorem.

[No. of Periods: 9+2]

Unit – II
Differential Calculus
Successive differentiation, Leibnitz's theorem; expansion of functions in Taylor's & Maclaurin's series; tracing of simple curves.

[No. of Periods: 9+2]

Unit – III
Integral Calculus
Reduction formula, application of integration to rectification, quadrature, volume of revolution, centre of gravity & moment of inertia.

[No. of Periods: 10+2]

Unit – IV
Partial Differentiation
Partial derivatives, Euler's theorem on homogeneous functions, maxima & minima of functions of two variables, Lagrange's method of undetermined multipliers, Jacobians; differentiation under the integral sign.

[No. of Periods: 10+3]

Unit – V
Ordinary Differential Equations & Applications
Exact differential equations, reducible to exact form; first order differential equations (non-linear); application to simple electrical circuits & heat flow.

[No. of Periods: 10+3]

Name of the Text Books:
1. Higher Engg. Mathematics by B. S. Grewal (38th edition)- Khanna Publishers.
2. Advanced Engg. Mathematics by Erwin Kreyszig (8th edition)- John Wiley & Sons.

Name of the Reference Books:
1. Differential Calculus by Gorakh Prasad – Pothishala Private Limited.
2. Integral Calculus by Gorakh Prasad – Pothishala Private Limited.
3. Advanced Engg. Mathematics by R. K. Jain & S. R. K. Iyengar Narosa Publishing House.
4. Applied Mathematics by P. N. Wartikar & J. N. Wartikar, Vol. (I&II) – Pune Vidyarthi Griha Prakashan, Pune.
5. Applied Mathematics for Engineers & Physicists by Louis A. Pipes – McGraw Hill.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Basic Electrical Engg.**   Code: **300115 (24)**
Total Theory Periods: 50   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit – I
D. C. networks: Kirchoof's laws, Node voltage and Mesh current methods, Delta – Star and Star Delta conversion; classification of Network Elements, Superposition principle, Thevenin's and Norton's theorems. Only independent source.
Magnetic Circuits: B-H curve, solution of magnetic circuits; Hysterisis and Eddy current losses. Difference between elect/magnetic circuits.
                                                                                          [No. of Periods: 10+3]

Unit – II
Single Phase AC circuits: Solution of R, L, C series circuits, the j operator, complex representation of impendence, phasor diagram, power in complex notation, solution of parallel and series parallel circuits, series & parallel resonance.
Three phase AC circuits: Delta and Star connection, Linc and Phase quantities, solution of three phase circuits, balanced supply voltage and balanced load, phasor diagram, measurement of power in three phase circuits.
                                                                                          [No. of Periods: 10+3]

Unit – III
Transformers: construction, EMF equation, rating, phasor diagram on no load and full load, equivalent circuit, regulation, Losses, efficiency. All day efficiency calculation, open and short circuit tests.
                                                                                          [No. of Periods: 10+2]

Unit – IV
DC Machines: Construction, EMF and torque equations, classification and application and characteristics of DC motors.
Single & three phase induction Motors: construction, principle of operation TIS curve starting of 1Φ IM, application of 3 Φ & 1 Φ IM.
                                                                                          [No. of Periods: 10+2]

Unit – V
Electrical Measuring instruments: Classification, indicating, recording and integrating type instruments, deflecting torque, controlling torque Damping torque, DC PMMC instruments, shunts and multipliers, moving iron ammeters and voltmeters, construction & working principle of single phase watt meter and energy meter.
                                                                                          [No. of Periods: 8+2]

Name of the Text Books:
1. Fitzrald and Higgonbothom, Basic Electrical Engineering, Fifth Edition, McGraw Hill.
2. Del Torro, Vincent "Electrical Engineering Fundamentals", Second Edition Prentice Hall of India Pvt. Ltd.

Name of the Reference Books:
1. Basic Electrical Engineering by I. J. Nagrath, (T.M.H.)
2. Cotton, H. "Advance Electrical Technology," ISSAC Pitman, London.
3. Parker Smith S. (Ed. Parker Smith N. N.,"Problems in Electrical Engineering", Tenth edition, Asia publications.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Engineering Mechanics**   Code: **300116 (37)**
Total Theory Periods: 40   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit – I
EQUILIBRIUM OF FORCES AND COUPLES:
Free body diagram; Resultant of plane concurrent and non-concurrent forces; Conditions of equilibrium – Analytical and graphical methods; Application in solving simple problems.

[No. of Periods: 6+2]

Unit – II
A] SHEAR FORCE AND BENDING MOMENT DIAGRAM
Types of supports for beams, Beams subjected to concentrated loads and uniformly distributed loads; Shear force and bending moment at any section of a beam Analytical methods and graphical methods, Force polygon and couple polygon. Reactions at supports.
B] ANALYSIS OF PLANE TRUSSES
Analysis of forces in structural members : Method of joint and method of section Analytical and graphical methods.

[No. of Periods: 10+2]

Unit – III
FRICTION
Laws of friction and its applications in solving problems on
  i)   wedge,
  ii)   Belt and rope drive
  iii) Screw threads
  iv) Tractive effort of vehicles on inclined planes.

[No. of Periods: 8+2]

Unit – IV
A] MOMENT OF INERTIA OF PLANE LAMINA
Parallel axis theorem and perpendicular axis theorem; product of inertia; Moment of inertia about an inclined axis; Principle axis of moment of inertia and position of principle axis.
B] Moment of inertia of solid of revolutions

[No. of Periods: 8+2]

Unit – V
Kinematics of rigid bodies in motion
A] D'Alembert's principle applied to bodies having linear and angular motion; Equation of dynamic equilibrium; Maximum acceleration and retardation of vehicles running on inclined planes.
B] Principle of work and Energy: Simple application
C] Principle of Impulse and momentum: Simple examples.

[No. of Periods: 8+2]

Name of the Text Books:
  1. I. B. Prasad : A text book of Applied Mechanics, Khanna Pub., Delhi
  2. A. K. Tayal : Engineering Mechanics (Statics and Dynamics); Umesh Pub., Delhi
  3. S. Tomoshenko and D.H. Youngh : Engineering Mechanics

Name of the Reference Books:
  1. Bear F. P. & Jonston F.R. : Mechanics for Engineers; McGraw Hills

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Applied Chemistry- Lab**   Code: **300121 (11)**
Total Practical Periods: 28   Total Tutorial Periods: Nil
Total Marks in End Semester Exam: 40

List of Experiments

1. To determine the percentage composition of a mixture of Sodium Hydroxide and Sodium Chloride.

2. To determine the amount of Sodium Carbonate in the given mixture of Sodium Carbonate and Sodium Bicarbonate.

3. Determine the amount of Oxalic Acid and Sulphuric Acid/Hydrochloric Acid in one litre of solution given standard Sodium Hydroxide and Potassium Permanganate.

4. To determine the Carbonate, Bicarbonate and Chloride contents in irrigation water.

5. Argentometric titration one each of Vohlard's method and of Mohr's method.

6. Complexometric Titrations Ca & Mg.

7. Deternimation of dissolved Oxygen in given sample of water.

8. Deterination of calorific value of fuel by Bomb Calorimeter.

9. Determination of Flash Point and Fine Point of lubricant by Abels and Pensky Martin apparatus.

Name of the Text Books:

2. Laboratory manual on Engineering Chemistry by Dr. Sudha Rani (S. Chand and Company).
3. A Textbook on Experiments and Calculations in Engineering Chemistry by S.S. Dara (Dhanapat Rai Publishing Company Pvt. Ltd.).

Name of the Reference Books:

1. Vogel's Texbook of Quantitative Chemical Analysis (Latest ed.), Revised by G.H. Jeffery, J. Bassett, J. Mendham & R.C. Denney.
2. Applied Chemistry: Theory and Practice (Latest ed.), by O.P. Vermani and A. K. Narula.

Chhattisgarh Swami Vivekanand Technical University
Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Basic Electrical Engineering- Lab**   Code: **300122 (24)**
Total Practical Periods: 28   Total Tutorial Periods: Nil
Total Marks in End Semester Exam: 40

List of Experiments

01.   To verify Thevenin's and Norton's Theorems.

02.   To verify Superposition Theorem.

03.   Voltage-Current Characteristics of Incandescent lamp.

04.   To study B-H Curve.

05.   To Measure Current, Power, Voltage and Power Factor of series R-L-C Circuit.

06.   To Measure R and L of a Chock Coil.

07.   To Measure Power in Three Phase Circuity by Two Wattmeter Method.

08.   Calculate Efficiency of Transformer by Direct Loading.

09.   Calculate Regulation of Transformer.

10.   To Perform OC, SC Test of Single Phase Transformer.

11.   To study DC Motor.

12.   To study Induction Motor.

13.   Calibration of Energy Meter Using Voltmeter and Ammeter.

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Semester: **Ist**   Branch: Common to All Branches
Subject: **Engineering Mechanics Lab**   Code: **300123 (37)**
Total Practical Periods: 28   Total Tutorial Periods: Nil
Total Marks in End Semester Exam: 40

List of Experiments

1. To verify the Law of Polygon of Forces.

2. To obtain the Stiffness of Helical Spring.

3. To find the position of Centre of Gravity and Moment of Inertia a Connecting Rod.

4. To verify the Forces in member of a Jib Crane.

5. To obtain Velocity Ratio, Mechanical Advantage and Efficiency of a Winch Crab.

6. To obtain the efficiency of a Screw Jack.

7. To verify Newton's First Law of Motion using Inclined Plane & Rolling Cylinder.

8. To verify ratio of Tensions using Belt and Pulley Apparatus.

9. To find Coefficient of Friction Using Inclined Plane.

10. To verify the reactions in a simply supported Beam.

11. To draw Bending Moment and Shear force Diagram.

    Includes exercises on Force Polygon and Funicular Polygon

12. Graphical Analysis of Trusses.

Note: Students must use computers for solving problems

1. EXCEL has a very power calculation capacity.
2. AUTOCAD "CAL" is a Geometrical Calculator and very easily be used for solving problems on Vector.
3. MATHCAD makes calculations the way we write on our note books.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Workshop**   Code: **300124 (37)**
Total Practical Periods: 72   Total Tutorial Periods: - NIL
Total Marks in End Semester Exam: 40
Minimum number of class tests to be conducted: 02

CARPENTRY:
Timber, Definition, Engineering Application, Types of Wood, Seasoning and Preservation, PlyWood, PlyBoards.

6

Practical Work: T Lap Joint
End Lap Joint

FOUNDRY:
Moulding Sands, Constituents and Characteristics, Pattern, Definition Material, Types, Core Prints, Role of Gate runner, riser, core, casting defects like blow holes & cavities.

12

Practical Work: Mould of any pattern
Casting of simple pattern

WELDING:
Welding , Brazing and soldering process and their applications. Oxy-acetylene gas welding process, Type of flame & their application. Manual & Metal arc welding technique and equipment, AC & DC welding, Constituents and functions of electrode coating, welding positions, type of weld joints, Common welding defects.

12

Practical Work:
- 1.   Lap Joint by Gas Welding
- 2.   Square butt joint Arc welding
- 3.   Lap joint by Arc welding
- 4.   Demonstration of brazing

METAL CUTTING:
Introduction to machining and common machining operations. Cutting tool material, Definition of machine tools, specification and block diagram of lathe, Shaper Drilling machine and grinder. Common lathe operations such as turning, parting, chamfering and facing. Quick return mechanism of shaper, Difference between drilling and boring, Files-Material classification.

Practical Work –

FITTING
- 1.   Preparation of step cutting Job, out of 5mm thick strip.
- 2.   Preparation of 'V' notch 'V' groove, out of 5mm thick strip.
- 3.   Preparation of Male-Female joint our of 5 mm thick strip.

12

TURNING
- 1.   Job on Lathe with one plane turning chamfering operations.
- 2.   Job on Lathe with one step turning
- 3.   Job on shaper for finishing two sides of a Job.
- 4.   Drilling two holes of size 5mm and 12mm diameter on job used / to be used for shaping.

12

FORGING:

Forging principle, Material, Operations like drawing, upsetting, bending and forge welding, use of forged parts.

6

Exposure to High Tech Area: Exposure to High Tech Area like Plastic Injection Moulding, Die Casting, Diamond Cutting PCB Manufacturing, CNC manufacturing Latest Techniques in Welding etc. Should be imparted through factory visit and audio-visual means.

12

Latest Techniques in Welding

REFERENCE BOOKS:

- Chapman, W.A.J. and Arnold E., "Workshop Technology" Vol. I & III, Viva Low price student Edition, 1998
- Chaudhary, Hajra, "Elements of Workshop Technology" Media Promoters & Publishers, 1997.
- Raghuwanshi, B.s., "Workshop Technology" Vol I 7 II, Dhanpat Rai and Sons 1998.

Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.)

Semester: **Ist**   Branch: Common to All Branches
Subject: **Communication Skills**   Code: **300125 (46)**
Total Practical Periods: 24   Total Tutorial Periods: -
Minimum number of class tests to be conducted: 02

Communication Skills (Practical)

List of exercises to be performed as practical work in language lab to train the students to be proficient in communication.

- ➢ Formal and Informal Speaking
- ➢ Elementary Phonetics (Speech Mechanism. The Description of Speech Sounds, The Phoneme the syllable; Intonation and Word Accent)
- ➢ Paralinguistic features of speaking (voice quality, pitch, tone, etc.)
- ➢ Paper Presentation
- ➢ Use of Audio-Visual aids: Preparation of transparencies, slides, power point presentation etc.
- ➢ Body Language.
- ➢ Exercises on Listening Comprehension.
- ➢ Exercises on Reading Comprehension.
- ➢ Effective Writing.
- ➢ Internet exploration.