DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.ACAD/SU/Sci./Syllabus/93/2014

It is hereby notified for information of all concerned that, on the recommendations of the Ad-hoc Boards and Dean, Faculty of Science, the **Academic Council at its meeting held on 08-07-2014 has accepted the following revised syllabi as mentioned against their nomenclature for B.Sc. & M.Sc. under the Faculty of Science :-**

Sr. No.	Revised Syllabus		Semester
[1]	B.Sc. Environment Science	[Optional]	I & II
[2]	B.Sc. Sericulture	[Optional]	I & II
[3]	B.Sc. Automobile Technology	Degree Course	I & II
[4]	B.Sc. Workshop Technology	Degree Course	I & II
[5]	B.Sc. Refrigeration & Air Conditioning	Degree Course	I & II
[6]	B.Sc. Forensic Science	Degree Course	III & IV
[7]	B.Sc. Polymer Chemistry	[Optional]	III & IV
[8]	B.Sc. Environment Science	[Optional]	III & IV
[9]	M.Sc. Plant Breeding & Molecular Genetics		III & IV

This is effective from the **Academic Year 2014-2015** and onwards.

These **syllabi are available on the University Website.**

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.ACAD/SU/B.Sc. & M.Sc./
2014/16264-463
A.C.S.A.I.No.462[18].

Date:- 12-08-2014.

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Director,
Board of College and University Development.

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Copy forwarded with compliments to :-

1] **The Principals, affiliated concerned Colleges,**
Dr. Babasaheb Ambedkar Marathwada University.

2] The Director, University Network & Information Centre, UNIC, with **a request to upload the above all syllabi on University Website.**

Copy to :-

1] The Controller of Examinations,

2] The Superintendent, [B.Sc. Unit],

3] The Superintendent, [M.Sc. Unit],

4] The Superintendent, [Eligibility Unit],

5] The Programmer [Computer Unit-1] Examinations,

6] The Programmer [Computer Unit-2] Examinations,

7] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
Dr. Babasaheb Ambedkar Marathwada University,

8] The Public Relation Officer,

9] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

-=**=-

S*/-120814/-

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

REVISED SYLLABUS OF FIRST YEAR

1) B.Sc. (Automobile Technology)

2) B.Sc. (Workshop Technology)

3) B.Sc. (Refrigeration & Air Conditioning)

FIRST SEMESTER

APPENDIX – 'A'

B. Sc. (AUTOMOBILE TECHNOLOGY./WORKSHOP TECHNOLOGY / REF.& AIR COND.)
VOCATIONAL COURSES

R-1878 : The Following shall be the scheme of examination for B.Sc. Automobile Technology

FIRST SEMESTER

Paper no.	Name of Paper	Scheme and Pattern of Examination Teaching Scheme Periods (1 Hr.)		Total Mark			
		Theory Per week	Practical Per week	Total	Theory Hrs.	Practical	
I	Communication Skills –	3	--		50	--	50
II	Basic Electronics -1	3	3		50	50	100
III	Workshop Technology-1	3	3		50	50	100
IV	Engineering Drawing-1	3	3		50	50	100
V	Fundamentals of Mechanical Engineering	3	3		50	50	100
VI	Study Report on Environment science	--	3		--	50	50
	Total	**15**	**15**		**250**	**250**	**500**

SECOND SEMESTER

Paper no.	Name of Paper	Weekly Teaching Scheme		Scheme of Examinations			Total Mark
		Theory	Practical	Theory	Sessional	Practical	
VII	Basic Electronics –II	3	3	30	20	50	100
VIII	Computer Technique	3	3	30	20	50	100
IX	Workshop Technology-II	3	3	30	20	50	100
X	Engineering Drawing II	3	3	30	20	50	100
XI	Engineering Material	3	3	30	20	50	100
	Total	**15**	**15**	**250**		**250**	**500**

R.1879: **The Maximum number of students in a class for theory shall be 80**
Maximum number of students in a batch for practical's at the first and second year shall consist of 16 students and at third year the batch shall consist of 10 students.

R.1880(a): **A candidate who has passed the B. sc. (Auto Tech./ Workshop tech / Ref.&Air cond.) vocational courses examination of this university may be allowed to present himself subsequently at a Degree examination in a subject or subjects other than those he has taken earlier provided that he puts in three years or attendance as a regular candidate for First, Second and Third year in the subject or subjects concerned excluding compulsory English, Second language and remaining optional subject[s].**
A candidate shall not be allowed to appear for such examination if he has passed the higher examination.

(b): **When a candidate appears for all the subjects present at the examination without availing himself of the benefit of exemptions and passes the B. sc. (Auto Tech./ Workshop tech / Ref.&Air cond.) vocational courses examination shall be awarded the degree in the faculty and shall also be entitle to B. sc. (Auto Tech./ Workshop tech / Ref.&Air cond.) vocational courses examination and appearing subsequently with a change of subject or subject shall be simply declared to have passed in the subject or subjects concerned and e shall not be eligible for the award of another degree.**

R.1881: **ATKT rules . A candidate who has failed in not more than 25% of the papers (theory and practical taken together) at the first year examination shall be allowed to keep terms for the second year . He shall be permitted to clear those papers before or along with Second year examination. A candidate who has failed in not more than 25% of the papers (theory and practical taken together) at the Second year examination and has passed the First year examination completely shall be allowed to keep terms for the third year . His result of the Third year examination shall not be declared unless he passes the Second Year examination.**
Any fraction, while calculating 25% of the papers prescribed shall be ignored and rounded up to higher value.
Standard of Passing:

R.1882(a): **Standard of Passing :- The minimum marks for passing in each paper / practical shall be 35% of the maximum marks prescribed of each paper / Practical's. A candidate who secures 35% or more but less than 45% of the aggregate marks of theory and practical taken together for all the three years of the course shall be awarded a pass Division.**

(b): **A candidate who secures 45% or more but less than 60% of the aggregate marks of theory and practical's taken together for all the three years of the course shall awarded a Second division.**

I: **A candidate who secures 60% or more but less than 75% of the aggregate marks of theory and practical's taken together for all the three years of the course shall awarded a First Division.**

(d): **A candidate who secures 75% or more of the aggregate marks of theory and practical's taken together for all the three years of the course shall awarded a First class with Distinction.**

O.878Admission eligibility for B. sc. (Auto Tech./Workshop tech / Ref.&Air cond.) vocational courses Candidate who have pass XII science / M.C.V.C./ I.T.I. / Any Three year Diploma.

QUALIFICATIONS FOR APPOINTMENT OF TEACHERS

Lecturer:

1. He/ She should have passed B.E. / M.Sc. (Mech./Auto) with second class form any statutory University.

Reader:

1. He /She should have passed M.E. / M.Tech (Mech/Auto) with B+ NET/SET examination.
OR
2. Ph.D. in physics with Mech/Auto as specialization and
3. He / She should possess five years of teaching experience.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Statement showing the details of tuition fees and other fees for
B. Sc. Automobile Technology / B.Sc. Workshop Technology / B.Sc. Refrigeration

& Air Conditioning) Vocational Course

Per year on "No Grant Basis"

Ordinance – 1

Course	Admn. Fees Rs.	Tuition Fees Rs.	Library Fees Rs.	Laboratory Fees Rs.	Medical Exam. Fees Rs.	Gymkhana Fees Rs.	Sports Fees Rs.	Students Welfare Fees Rs.	Other Fees
1	2	3	4	5	6	7	8	9	10
B.Sc. (Automobile Maintenance Manufacturing Process / Ref. & A.C.) (Vocational)	200/-	6500/-	200/-	5000/-	5/-	25/-	10/-	10/-	621/-

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Statement showing the details of the Commencement of Examination and Date of Application and Examination fees for following for B. Sc. (AUTOMOBILE TECHNOLOGY/ WORKSHOP TECHNOLOGY / REF.& AIR COND.) (ALL VOCATIONAL) COURSES

Appendix- 'G'

Ordinance – 2

Sr. No.	Examination	How many Times & held in a year	Date of commencement		Date of Application		Examination Fees Rs.
1	2	3	4	5	6	7	8
1	B.Sc. (Automobile Maintenance Manufacturing Process / Ref. & A.C.) (Vocational)	Twice	First Monday in Oct/Nov.	First Monday after the commencement March/April	August	Jan.	Rs.590 for theory Rs.300 for practical

FIRST SEMESTER

PAPER – I COMMUNICATION SKILLS -

SN	Section	Content	Hours
1	Introduction	Importance of Soft Skills in general, Communication Skills in particular.	04
2	Communication Process	Basic Concepts, Kinds, Routes Forms, Factors, Barriers. Activity in understanding the barriers in communication.	06
3	Oral communication	Introduction to various types: Formal, Informal, Face to Face, Telephonic. Activity: Self Introduction or Introduction in pairs.	06
4	Listening Skills	Listening process, Hearing and Listening, Types of listening - superficial, appreciative, focused, evaluative, attentive, empathetic, Barriers in listening, Effective listening strategies. Activities: Listening in conversational interaction, Listening to structured talks, Team listening.	08
5	Speaking Skills	Phonetics and problems in learning and using pronunciation Vowel sounds, Consonant Sounds, Word accent, Sentence Intonation	06
6	Conversation Skills(Dialogue)	Conversation skills in different situations (Expressing different language functions - orders, requests, advice, suggestions, questions, Opinions (agreement / disagreement), defining, describing Activities: Skits with Social messages and Role Plays	06
7	Public Speaking and Presentation skills	Planning, Preparation, Organization, Delivery in Seminars Compeering/Anchoring Activities: Speeches, JAM Sessions	04

Reference Books:

1) Creative English for Communication – Madras, Macmillan
2) Organized writing – Narayanswamy V.P. ..Orient Longman
3) Written Communication – Freemen Sarah.. Orient Longman
4) Writing with a purpose – Tikoo and Shivkumar .. Orient Longman
5) A Course in Basic Scientific English – Ever and Galtorre (Harlow Longman)
6) New International Business English - Jones L & R. Alexander (Cambridge).

PAPER –II. BASIC ELECTRONICS –I

1. **Semiconductors and Diodes.** **(12)**
   a) Introduction to semiconductor.
   b) P type , N- type , intrinsic and extrinsic semiconductor, PN junction diode, unbiased, forward bias, reverse bias, Characteristics of diode (barrier potential, depletion layer, effect of temperature on barrier potential), Zener diode, characteristics of Zener diode
   c) Special diode, LED, Varactor diode, Photo diode, working and characteristics.
2. **Transistors:** **(13)**
   a) BJT, working, characteristics, configuration (CE, CB, CC), α and β relation between α andβ, FET- working and characteristics, parameters, MOSFET- Working and characteristics, UJT- working and characteristics.
3. **Power Supplies :** **(15)**
   a) Transformer – working principle, construction, types of transformer, their working and construction.
   b) Diode rectifier, Half wave, full wave, bridge rectifier with analysis (Efficiency, ripple factor).
   c) Filter circuit, shunt capacitor, L section , Pi- filter and their effect on ripple factor.
   d) Voltage doubler, voltage multiplier.
   e) Regulated power supply- shunt regulator, series regulator, fixed regulators, use of 78xx for example 7805, 7812. 79xx for example 7905, 7912. SMPS Power Supply.

Reference Books-

1.Electronic and Radio Engg. – N.D. Gupta,
2. Basic Electronics – Malvino
3. A textbook of Applied Electronics – R.S. Sedha – S.Chand and Co. Ltd. New Delhi.

PAPER -III WORKSHOP TECHNOLOGY-I

1. **Safety and Precautions** – Importance of safety and general precautions to be observed in the shop, use of fire extinguishers, storing and handling of inflammable materials, Elementary first aid. **(4)**
2. **Fitting and Bench Work**
   Necessity and importance of bench work.. Description and uses of different had tools like:1. Holding tools 2. Striking Tools, 3.Cutting tools, 4.Drilling, boring taping and dying tools 5. Scrapping tools 6. Marking tools like surface plates, angle plates, V-blocks Tri-square, scribers etc. **(8)**
3. **Metrology** – Introduction, concepts of measurements, measuring instruments such as scale, vernier, micrometer, depth gauge, bore gauge, filler gauge, screw gauge, divider, caliber, dial gauge, compression gauge, vacuum gauge. **(8)**
4. **Manufacturing Process** – Introduction, different types of manufacturing process such as casting, welding, forging, cold rolling, hot rolling, maching, fabricating etc. **(8)**
5. **Welding** – Introduction, types of welding- Arc welding, gas welding, thermit welding etc. soldering and brazing. **(6)**
6. **Sheet metal work-** Introduction, metals used in sheet metal work, sheet metal hand tools, sheet metal operation, sheet metal joints, sheet metal working machines. **(6)**

Reference Books

1. Workshop Technology – Vol – I and II – By Hajra and Choudhary
2. Production Technology – R.K. Jain
3. Workshop Technology – Vol I and II – By Raghuwanshi
4. Workshop Technology – By Chapman

PAPER IV- ENGINEERING DRAWING-I

1. ENGINEERING DRAWING – Layout drawing sheets – drawing sheet, sizes information on drawing sheets part list in case of sub-assemblies.**(3)**

2. LINES, LETTERING AND DIMENSIONING Introduction, Various types of Lines with sketch, Lettering- Definition, Classification and sketches, Dimensioning – methods, general rules. **(3)**

3. SCALES Scales- Representative fraction, Types of scales- Plain scales Diagonal scales, vernier scale etc. **(3)**

4. ENGINEERING CURVES

Introduction, Methods and construction of various types of curves such as Ellipse, Parabola, Hyperbola, Cycloids, Involutes etc. **(11)**

5 ORTHOGRAPHIC PROJECTION

1st and 3rd angle method of projections.

1) **Projections of Straight Line**

2) Plane

a. Perpendicular planes
b. Perpendicular to both the Reference Books planes
c. Perpendicular to one plane and parallel to the other plane
d. Perpendicular to one plane and inclined to the other plane

3) Projections of Solids

1 Projections of solids in simple positions
a. Axis perpendicular to the HP
b. Axis perpendicular to the V.P.
c. Axis parallel to both the HP and the VP
2 Projections of solids with axes inclined to one of the Reference Books planes and the Reference Books planes and parallel to the other.
3 Projections of solids with axes inclined to both the HP and the VP **(20)**

Reference Books:

Engineering Drawing - N.D. Bhatt.
Machine Drawing - N.D. Bhatt.
Engineering Drawing - M.L. Dabade

PAPER V- FUNDAMENTALS OF MECHANICAL ENGINEERING

1) **Basic Concepts of Mechanical Engineering** Introduction Dimensions and units of physical quantity, system and surrounding, working substance, Definition and meaning of the usual term such as pressure, temperature, specific volume, density, energy, heat, work, power working principles of temperature and pressure measuring instruments used in practice. **5**

2) **Laws of thermo dynamics.** Introduction, Internal energy, Laws of conservation of mass, momentum and energy joule's experiment and relation between work and heat enthalpy, Importance of conversion of energy into mechanical or electrical energy reversible and Irreversible process. Entropy, first law of thermodynamics limitation and applications. Second law of thermodynamic and it applications. **5**

3) **Ideal and real Gases-** Introduction, Boyle's law charle's law characteristics equation for gases specific that's of gases, Now flow process using goal gas. Vender wall's equation viral equation of state Beattie- Bridgman's equation, reduced properties. **5**

4) **Properties of Steam-**
Introduction vapors as working substances, application of state in practice, generation of steam of constant pressure, important proportions of steam such as internal energy, entropy, specific volume etc. Thermodynamic processes using steam as working substance. **6**

5) **Fuel and Combustion-** Introduction, classification heating values of fuels. **5**

6) **Mechanical Energy converting Devices-** Introduction construction main parts and working of mechanical prime movers duplicating.
Steam engine, working of steam, work done, mean effective pressure, Indicated power of engineer brake power and mechanical efficiency energy consuming devices- Reciprocating our compressor, use of compressed air working of a reciprocating air compressor, Refrigerator, window air coolers , Air coolers. **6**

7) **Sources of energy-** Energy crisis, energy sources in exhaustive energy sources, solar, energy would energy, Tidal energy ocean wave energy, Ocean thermal energy geothermal energy, Bio gas plant, Hydraulic energy. Non renewable or exhaustive sources of energy, thermal power plant, I C engine, Gas power plant, Nuclear power plant. **4**

8) **Elements of heat transfer :-Basic concept,** conduction heat transfer, convention heat transfer heat exchangers, Radiation heat transfer. **4**

Reference:-

(a) Mechanical Technology by Kulkarni R.S.
(b) Elements of Mechanical Engineering P.B. Joshi &U.S.Tumne
(c) Thermal Engineering by R.K. Rajant
(d) A course in thermal Engg by – Dr.Kothandaraman.C.P.
(e) Elements of Mechanical Engg. – Prof. K.B. Bokankar
(f) Engineering thermodynamics – P.K. Wagh

PAPER- VI. STUDY REPORT ON ENVIRONMENT SCIENCE

1) Definition, scope & importance .broad area of study in environmental science. Need for awareness. Natural resources renewable & non – renewable resources, forest resources, water Resources, mineral resources, food resources, energy resources, land resources. Equitable resources for sustainable life style, solar energy, wind energy, geo-thermal energy, effects of pollution on human beings, plants, climate etc.Global warming &green houseeffect **15 hrs**

2)Geochemical -& hydrological cycles , carbon , nitrogen & water cycles, & other Environmental factors influencing our eco system, Man & environment.industrial pollution of air,Ozone Layer study and alteration in uv radiation , Examples of pollution hazards. **- 12 hrs**

3)Principles of sustainability , water scarcity why & how , deforestation & a forestation , the food chain .Irrigation and other agricultural pollution and their management **- 13 hrs**

Books Recommended:

1) Environmental problems and solutions – by D.K.Asthana&MeeraAsthana, Pub.S.Chand and Co.Ltd.New Delhi.
2) Understanding environment – Editors: KiranB.Chokkar,MamtaPandeya,MeenaRaghunathan,Sage Publication New Delhi.
3) Environmental Issues and Themes – S.K.Aggarwal,A.P.H Publishing Corporation, New Delhi.
4) Principles of Environmental Studies – by C.Manoharacharya,P.JayaramReddy,B.S.Publications Hyderabad.
5) Environmental science and engineering by AlokDebi,Universities Press(India)Pvt.Ltd. HimayatNagar, Hyderabad(A.P)
6) Dictionary of Ecology and Environment – by Jill Barily Universities Press (India) Pvt. Ltd. HimayatNagar, Hyderabad (A.P).
7) Fundamental concepts in Environmental Studies – by Dr.D.D.Mishra,Pub:S.Chand and Co.Ltd.New Delhi.
8) A text book of Environmental studies – by D.K.Asthana&MeeraAsthana, Pub: S. Chand and Co. Ltd.NewDelhi.
9) A text book of Environmental Studies – by ErachBharucha,Publication :University Grant Commision.

PRACTICAL –Based On Paper -II
List of Practical:

1. To study characteristics of P-N diode.(Forward bias)
2. To study characteristics Zener diode.(Reverse bias)
3. To study half-wave rectifier with line and load regulation.
4. To study full-wave rectifier with line and load regulation
5. To Study bridge rectifier with line and load regulation
6. To study of shunt capacitor filter
7. To study of L-section filter.
8. To study of Pi filter.
9. To study voltage doublers circuit.
10. To study I/p and O/p characteristics of transistor in CE mode.

PRACTICAL –Based On Paper -III
List of Practical:

1. To draw sketches of marking tools.
2. To Draw sketches of measuring tools
3. To draw sketches of different spanners.
4. To conduct exercise for filling on two jobs each, cutting, scrapping and chipping
5. To conduct exercise on drilling and taping on any two jobs.
6. To conduct exercise on external threading by using dies.
7. To draw neat sketch of bench grinder.
8. To conduct two exercise on arc welding and gas welding
9. Toprepare mail and female part in fitting shop.
10. Draw various types of hand tools.

PRACTICAL –Based On Paper -IV
List of Practical:

1. Sheet No. 1 : Drawing of Engineering curves.
2. Sheet No. 2 : Drawing of orthographic projection of lines.
3. Sheet No. 3 : Drawing of orthographic projection of planes.
4. Sheet No. 4 : Drawing of orthographic projection of solids

PRACTICAL –Based On Paper -VI
List of Practical:

1) To study the basic concept of mechanical engg.
2) To prove Boyles law gas equation
3) To study the first law of thermodynamics
4) To study the construction and working of steam engine
5) To study the working of I. C. engine
6) To study various power generation system

SECOND SEMESTER

PAPER –VII. BASIC ELECTRONICS –II

Transistor Biasing & Stabilization **(10)**

A Load line different types of biasing, Q-point and maximum undistorted output, Factors affecting stability of Q-point, Stability factor, fixed bias, potential divider, voltage bias,

B AMLIFIE (15)

CE amplifier, equivalent circuit , H parameter (only for CE amplifier), Gain, voltage gain, current gain, CB amplifier, expression for voltage and current gain , CC amplifier (emitter follower), Input and output impedance, different coupling methods, RC , Direct and transformer coupled, Class A, Class B, Class C , Class AB, Distortion in amplifier, Noise.

Class B Push – Pull Amplifier

Feedback Amplifier:

Positive and negative feedback – concept

Voltage and current feedback

Effect of negative feedback on gain bandwidth etc.

Oscillators(15) Basic Oscillators Circuit, Types RC / LC

A) Condition for oscillation,

B) Hartley oscillator, colpitt's oscillator, phase shift oscillator, Wein bridge oscillator Crystal Oscillator

Reference Books

1 Electronic and Radio Engg. – M.L. Gupta,

2 Basic Electronics – Malvino

3 A textbook of Applied Electronics – R.S. Sedha – S.Chand and Co. Ltd. New Delhi.

PAPER –VIII ComputerTechniques

Introduction to Computers:

- Types of Computers
- Hardware of Software
- Types of Software (Operating System, Application Software)
- Components of Computer System: CPU, Memory, I/o devices of Storage Devices
- Computer Networks: Definition, Uses of Network, Types of Networks, Network Topologies **(10h)**

Evolution of Numerical Computing

i. Number System (Binary, HEX, Octal, Decimal)
ii. Data representation (Floating fount Arithmetic, Normalization).
iii. Approximations of errors in Computing
  a. Inherent errors b. Relative errors c.Conditioning of Stability
iv. Numerical Methods
i. Bisection Method
ii. False Position Method
iii. Gauss Elimination Method
iv. Linear Regression Programming in Computer
v. Structure of C program
vi. Reserved words.
vii. Arithmetic Relational, logical operators
viii. Statements in C Language
v. Control Statements of Conditional Statements. **(12h)**

Internet

- What is Internet
- History of uses of internet
- Services on Internet

1. E-mail 2. Search Engines 3.Chat Service **(10h)**

Application of Computer in Automobile Technology: -

(08h)

Reference Books:-

1. Programming with C-2nd Edition (Schaum outline series) 0-07-463491-7by gottfried, Tata megraw-Hill.
2. Numerical Methods by #-Balaguruswamy year 1999,Tata-Megraw Hill.
3. Mastering Microsoft Office ProfessionalBPW Publication.
4. Effective Internet by frotg Erickson, Millersville University of Penn &ZohnVonk ISBN-0-07-114181-2(IE)
5. MICROSOFT office 2000 by Timothy J.O. Leary, Arizona State university- Year 2000 ISBN-0-07-116811-7 (IE)

PAPER-IX. WORKSHOP TECHNOLOGY-II

1. **Lathe** –Introduction, classification, applications, construction and working, different types of operations, construction details, types of lathe, different operations such as facing, turning, drilling, boring, threading, parting, knurling etc. **(8)**
2. **Drilling machine** - Introduction, classification, applications, construction and operations. **(6)**
3. **Grinding machine** - Introduction, classification, applications, construction and working. **(6)**
4. **Machine Tools**- Introduction, basic concepts, construction and working of different types of machines such as shaper, slotter, planner, miller etc. **(12)**
5. **CNC machine** - Introduction, basic components, construction , types , & Application **(8)**

Reference Books

1. Workshop Technology – Vol.II – By Hajra and Choudhary
2. Production Technology – R.K. Jain
3. Workshop Technology – Vol II – By Raghuwanshi
4. Workshop Technology – By Chapman

PAPER-X. ENGINEERING DRAWING-II

1) Projection of Section of Solids **(10)**

Section of prism, pyramid, cylinder and cone

2) Isometric Projection **(10)**

Introduction, Drawing of Isometric scale distinction between Isometric drawing and Isometric projections, Isometric drawing of a rectangle, hexagon and pentagon, circle an arc, Isometric drawing and sketching of simple machine components.

3) Intersection of surfaces **(10)**

Lines of intersection, intersection of prism and prism, cylinder and cylinder, cylinder and prism

4) Development of surfaces **(10)**

Development of surfaces of Cube, prism, cylinder pyramid

Reference Books –

Engineering Drawing - N.D. Bhatt.
Machine Drawing - N.D. Bhatt.
Engineering Drawing - M.L. Dabade

PAPER -XI. ENGINEERING MATERIAL

1) INTRODUCTION OF MATERIAL (4)

Requirements of material, Classifications, Collection, Structure, Advance Material.

2) MECHANICAL PROPERTIES OF MATERIAL. (8)

Basic properties - Stress - Strain diagram, young's modules. Elastic, constant, homogeneity.Mechanical properties – strengths, stiffness, toughness, elasticity, plasticity, hardness, ductility, brittleness, malleability, fatigue, creep etc.

3) COMPOSITE MATERIAL (3)

Laminate, Reinforce composite material and classification, application

4) HEAT TREATMENT (6)

Introduction, purpose of heat treatment, Methods like annealing, normalizing, hardening, tempering etc. Iron Carbon diagram,

5) CORROSION AND OXIDATION (3)

Introduction, Types, protection against corrosion, environment effects

6) MAGNETIC, DIELECTRIC, SUPERCONDUCTORS AND THERMAL PROPERTIES (8)

Introduction of magnetic and non magnetic material, Dielectric material. Properties of superconductors, types & application
Thermal properties and effects

7) ENGINEERING MATERIAL (8)

Introduction, classification, properties and general application

Reference book:-
Material Science & Engineering by K.M. Gupta

PRACTICAL –Based On Paper No.VII
List of Practical:

1 To study voltage doubler circuit.
2 To study I/p and O/p characteristics of transistor in CE mode.
3 To study multitap power supply (Battery eliminator)
4 To study series regulator.
5 To study regulated power supply using 78xx
6 To study regulated power supply using 79xx
7 To study of transistor amplifier (Frequency response)
8 To study of two stage R-C coupled amplifier.
9 To study of phase shift oscillator.
10 To study of Hartley oscillator.
11 To study of colpitt's oscillator.

Note : Minimum 8 experiments to be completed in a Semester.

Practicals: Based On Paper VIII

1. Study of various Components of Intel Pentium Series
   Computers:- CPU, Motherboard, Expansion Slot, USB,HDD,
   FDD, CD-Drive, Soerdblesters, Speakers, SMPS, Serial / Parallel, Ports.
2. Study of MS-Dos Operating System
   i) Internet Commands
   ii) Internal Commands
3. Study of W/N/95/98/2000/MS Operating System
   i) Exploring the desktop tomb
   ii) Windows Tools
4. Programming in C any for programming methods board on Statistical
5. Introduction to Office Automation Tools
   i) MS-WORD 2000
   ii) MS- Excel 2000
   iii) Ms-Power point 2000
6. Surfing on Internet:- Searching the information using search Engines, down loading the information from Internet.
7. Study of Statistical Packages make (SPSS)

PRACTICAL –Based On Paper No.IX

List of Practical:

1. To prepare a job which consist facing , plain and step turning , taper turning and threading
2 To prepare a composite job
3 To conduct two exercises on drilling operation.
4 Draw a neat sketch of lathe machine used in workshop.
5 Demonstration and study of different machines such as milling, shaper, boring etc.
6 To conduct exercise on grinding
7 To conduct two exercises on shaper.

PRACTICAL –Based On Paper No.X

List of Practical:

1) Seat No. 1 : Drawing of Section of solids
2) Seat No. 2 : Drawing of Isometric Projection
3) Seat No. 3 : Drawing of interpretation
4) Seat No. 4 : Drawing of Development of surface

PRACTICAL –Based On Paper No.XI

List of Practical:

1.To study the microstructures of various metals.

2.To study the iron carbon diagram.

3. To study the heat treatment methods.

4.To test the hardness of various metals.