



MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI
TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES

COURSE NAME : ELECTRONICS ENGINEERING GROUP

COURSE CODE : EJ/EN/ET/EX/IS/IC/DE/IE/MU/IU/ED/EI/EV

DURATION OF COURSE : 6 SEMESTERS for EJ/EN/ET/EX/IS/IC/DE/IE/MU (8 SEMESTERS for IU/ED/EI) WITH EFFECT FROM 2012-13

SEMESTER : SECOND

DURATION : 16 WEEKS

FULL TIME / PART TIME : FULL TIME

SCHEME : G

SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME										SW (17200)		
				TH	TU	PR	PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)					
								Max	Min	Max	Min	Max	Min	Max	Min				
1	Communication Skills \$	CMS	17201	02	--	02	03	100	40	--	--	25#	10	25@	10	50			
2*	Applied Science	Physics	APH	17210	02	--	02	02	50	100	40	25@	50	20	--		--	--	--
		Chemistry	ACH	17211	02	--	02	02	50			25@			--		--	--	--
3	Elements of Electronics	EEX	17215	04	--	04	03	100	40	50#	20	--	--	25@	10				
4	Engineering Mathematics \$	EMS	17216	03	01	--	03	100	40	--	--	--	--	--	--				
5	Development of Life Skills \$	DLS	17010	01	--	02	--	--	--	--	--	25@	10	--	--				
6	Electronic Workshop	EEW	17014	--	--	04	--	--	--	--	--	--	--	50@	20				
Total				14	01	16	--	400	--	100	--	50	--	100	--	50			

Student Contact Hours Per Week: 31 Hrs.

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

Total Marks : 700

@ - Internal Assessment, # - External Assessment, [] No Theory Examination, \$ - Common to all branches

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Term Work, SW- Sessional Work,

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subject are to be converted out of 50 marks as sessional work.
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms
- Code number for TH, PR, OR, TW and SW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

* Applied Science is divided into two parts- Applied Science (Physics) and Applied Science (Chemistry). Theory examination of both parts as well as practical examination of both parts will be conducted on separate days. Sum of theory marks of both parts shall be considered for passing theory examination of Applied Science. Similarly it is also applicable to practical examination. It is mandatory to appear theory and practical examination of both parts. Remaining absent in any examination of any part will not be declared successful for that examination head.

* Candidate remaining absent in examination of any one part of Applied Science subject i.e. Physics, Chemistry will be declare as Absent in Mark List and has to appear for examination. The marks of the part for which candidate was present will not be processed or carried forward.

Communication Skills [CMS]

F.Y. Diploma : Sem. II
[All Branches]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	25#	25
Term Work	25@	25
Sessional Work (Two Test)	–	25 (each)

SYLLABUS

Topic 1 Introduction to Communication

Specific Objective

- Describe the process of communication.

Content

- Definition of communication
- Process of communication
- Types of communication -- Formal, Informal, Verbal, Nonverbal, Vertical, Horizontal, Diagonal

Topic 2 Effective communication

Specific Objective

- Identify the principles and barriers in the communication process

Content

- Principles of communication.
- Barriers to communication
 - (a) **Physical Barrier:**
 - Environmental (time, noise, distance & surroundings)
 - Personal (deafness, stammering, ill-health, spastic, bad handwriting)
 - (b) **Mechanical :** Machine oriented
 - (c) **Psychological:** Day dreaming, prejudice, emotions, blocked mind, generation gap, phobia, status inattentiveness, perception.
 - (d) **Language :** Difference in language, technical jargons, pronunciation & allusions.

Topic 3 Non verbal & Graphical communication

Specific Objective

- Effective use of body language & nonverbal codes
- View and interpret graphical information precisely.

Contents

3.1 Non- verbal codes:

- Proxemics
- Chronemics
- Artefacts

3.2 Aspects of body language (Kinesics)

- Facial expression
- Eye contact
- Vocalics, paralanguage
- Gesture
- Posture
- Dress & appearance
- Haptics

3.3 Graphical communication

- Advantages & disadvantages of graphical communication
- Tabulation of data & its depiction in the form of bar graphs & pie charts.

Topic 4 Listening

Specific Objective

- Effective use of listening

Contents

- Introduction to listening
- Listening versus hearing
- Merits of good listening
- Types of listening
- Techniques of effective listening

Topic 5 Formal Written Communication

Specific Objectives

- Use different formats of formal written skills.

Contents

- Office Drafting: Notice , memo & e-mail
- Job application with resume.
- Business correspondence: Enquiry letter, order letter ,complaint letter, adjustment letter.
- Report writing: Accident report, fall in production, investigation report.
- Describing objects & giving instructions

Reference :

1. Text book of Communication Skills, (*MSBTE Mumbai*) MSBTE, Mumbai.
2. CD On Communication Skills, (*MSBTE*) MSBTE, Mumbai.
3. Communication Skills (*Joyeeta Bhattacharya*) Reliable Series.
4. Communication Skills (*Sanjay Kumar, Pushpa Lata*) Oxford University Press.
5. Website: www.mindtools.com/page8.html-99k
6. Website: www.khake.com/page66htm/-72k
7. Website: [www.BMConsultant India.Com](http://www.BMConsultantIndia.Com)
8. Website: www.letstak.co.in
9. Website: www.inc.com/guides/growth/23032.html-45k



Engineering Mathematics [EMS]

F.Y. Diploma : Sem. II

[AE/CD/CE/CH/CM/CO/CR/CS/CV/CW/DE/ED/EE/EI/EJ/EN/EP/ET/EV/EX/
FE/IC/IE/IF/IS/IU/ME/MH/ MI/MU/PG/PS/PT]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	–	–
Term Work	–	–
Sessional Work (Two Test)	–	25 (each)

SYLLABUS

Topic 1 Complex number

- Complex number

Specific objectives

- Find roots of algebraic equations which are not in real.
- Definition of complex number, Cartesian, polar and exponential forms of complex number.
- Algebra of complex number such as equality, addition, subtraction, multiplication and division.
- De- Moivre's theorem with simple examples.
- Euler's form of circular functions, hyperbolic functions and relation between circular and hyperbolic functions.

Topic 2 Differential Calculus

2.1 Function

Specific objectives

- Identify the function and find the value of function.
- Definition of function, range and domain of function.
- Value of function at a point.
- Types of functions and examples.

2.2 Limits

Specific objectives

- To evaluate limit of function.
- Concept and definition of limit.
- Limits of algebraic, trigonometric, logarithmic and exponential functions with examples.

2.3 Derivatives

Specific objectives

- Find the derivatives by first principle.
- Solve problems using rules and methods of derivatives
- Definition of derivatives, notation, derivatives of standard function using first principle.

- Rules of differentiation such as, derivatives of sum or difference, product, and quotient with proofs.
- Derivative of composite function with proof (Chain rule)
- Derivatives of inverse trigonometric functions using substitution
- Derivatives of inverse function.
- Derivatives of implicit function.
- Derivatives of parametric function.
- Derivatives of one function w.r.t another function.
- Logarithmic differentiation.
- Second order differentiation.

Topic 3 Numerical Method

3.1 Solution of algebraic equation

Specific objectives

- Find the approximate root of algebraic equation
- Bisection method
- Regula falsi method
- Newton Rapshon method

3.2 Numerical solution of simultaneous equations

Specific objectives :

- Solve the system of equations in three unknowns.
- Gauss elimination method
- Jacobi's method
- Gauss Seidal method

Reference :

1. Mathematics for Polytechnic (*S.P. Deshpande*) Pune Vidyarthi Griha Prakashan – Pune.
2. Calculus : Single Variable (*Robert T. Smith*) Tata McGraw Hill.
3. Advanced Engineering Mathematics (*Dass H.K.*) S. Chand Publication – New Delhi.
4. Fundamentals of Mathematical Statistics (*S.C. Gupta & Kapoor*) S. Chand Publications – New Delhi.
5. Higher Engineering Mathematics (*B.S. Grewal*) Khanna Publication – New Delhi.
6. Applied Mathematics (*P.N. Wartikar*) Pune Vidyarthi Griha Prakashan – Pune.
7. Websites : www.khan.academy



Applied Physics [APH]

F.Y. Diploma : Sem. II

[EE/EP/EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ED/EI/IU/CO/CM/IF/CD/CW]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	2 Hrs.	50
Practical Exam	25@	25
Oral Exam	–	–
Term Work	–	–
Sessional Work (Two Test)	–	25 (each)

SYLLABUS

Topic 1 Basic Electric circuits

Specific objectives

- Calculate basic electric parameters for designing the simple electric circuits.
- Use basic electronic components like resistor, capacitor in electronic circuits.
- Use various networks such as Wheatstone's network, potentiometer
- Study principle and applications of condenser

1.1 Simple D.C. electric circuits

Electric current: definition, symbol and unit, Ohm's law: statement, mathematical expression, resistivity: definition, unit, conductivity: definition, unit.

1.2 Wheatstone's network and potentiometer

Wheatstone's network, working principle, balancing condition, principle of potentiometer, potential gradient.

1.3 Condensers

Capacity of condenser-definition and its unit, definition of 1 farad capacity, principle of condenser, derivation of capacity of parallel plate condenser, statement and derivation of series and parallel combination of condensers.

Topic 2 Semiconductor Physics

Specific objectives

- Differentiate between conductor, semiconductor, insulator
- Verify characteristics of P-N junction diode
- Study applications of P-N junction diode, photodiode.
- Classification of solids on the basis of band theory: forbidden energy gap, conductor, insulator, semiconductor.
- Classification of semiconductors, P-N junction diode, forward characteristics of P-N junction diode, reverse characteristics of P-N junction diode, photodiode, its symbol, principle and applications.

Topic 3 Modern physics

Specific objectives

- State the concept of photocell
- State applications of X – ray
- State properties and applications of LASER

3.1 Photo electricity

- Photon (quantum), Plank's hypothesis, energy of photon, properties of photons.
- Photo electric effect: circuit diagram, process of photoelectric emission, definitions:- threshold frequency, threshold wavelength, stopping potential, characteristics of photoelectric effect
- Work function, Einstein's photoelectric equation, photo resistor (LDR) – symbol, principle, applications, photoelectric cell:- principle, applications.

3.2 X-rays

- Origin of X-rays, production of X-rays using Coolidge's X-ray tube, minimum wavelength of X-ray, properties of X-rays, applications of X- rays: engineering, medical and scientific.

3.3 Laser

- Laser, properties of laser, spontaneous and stimulated emission, population inversion, optical pumping.
- He-Ne Laser: Principle, construction and working, engineering applications of Laser

Topic 4 Physics of Nanoparticles

Specific Objectives

- Study properties of nanoparticles.
- Study applications of nanotechnology.
- History, nanoparticles, properties of nanoparticles, methods of synthesis of nanoparticles: physical method of synthesis of nanoparticles, engineering applications of nanotechnology.

Reference :

1. Physics (*Resnick and Hailday*) Wisley Toppan Publishers – England.
2. Engineering Physics (*B.L. Theraja*) S. Chand Publishers – New Delhi.
3. Engineering Physics (*V. Rajendran*) Tata McGraw-Hill Publications.
4. Conceptual Physics (*P.G.Hewitt*) Pearson education (10th Edition).
5. Physics for Engineers (*M.R.Srinivasan*) New Age international publishers.
6. Physics- Std XI, Std XII, HSC board/CBSE Board
7. Engineering Physics (*D.K. Bhattacharya A. Bhaskaran*) Oxford university press
6. Website : <http://hyperphysics.phy-astr.gsu.edu/hbase/permot2.html>
7. Website : <http://physics.info>
8. Website : <http://physics.org>
9. Website : <http://about.com>
10. Website : <http://classroom.com>
11. Website : <http://101science.com>
12. CD : Educational Cd of NCERT
Educational cd of Pearson education India
13. Videos : <http://www.youtube.com> Laser cutter
<http://www.cmslaser.com>
14. PPT
www.slideshare.net/donpraju/laser-ppt
www.research.usf.edu/cs/rad/laser-ppt
www.studyvilla.com/laser-ppt-ruby laser
www.coursesuperconductor.ppt
www.khanacademy.com



Applied Chemistry [ACH]

F.Y. Diploma : Sem. II

[EE/EP/EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ED/EI/IU/CO/CM/IF/CD/CW]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	2 Hrs.	50
Practical Exam	25@	25
Oral Exam	–	–
Term Work	–	–
Sessional Work (Two Test)	–	25 (each)

SYLLABUS

Topic 1 Metallurgy

Specific Objectives

- Describe the extraction processes of copper and aluminium.
- State engineering applications of copper and aluminium based on their properties.

1.1 Metallurgy of Copper

Definition of metallurgy, Extraction process: Ores of copper, extraction of copper from copper pyrite by concentration, roasting, smelting, bessemerisation, electrolytic refining, Physical, chemical properties – action of air, water, acid, alkali. Applications of copper.

1.2 Metallurgy of Aluminium

Extraction process: Ores of aluminium, extraction of aluminium from bauxite by Bayer's process, electrolytic reduction of alumina, electrolytic refining of aluminium, Physical, chemical properties–action of air, water, acid, alkali. Applications of aluminium, anodizing of aluminium.

1.3 Solders

Composition, properties and applications of- soft solder, tinmann's solder, brazing alloy, rose metal, plumber's solder.

Topic 2 Corrosion

Specific Objectives

- Explain Mechanism of atmospheric corrosion and immersed corrosion.
- Describe different methods of protection of metal from corrosion

2.1 Corrosion

Definition of corrosion, Types of corrosion, Atmospheric Corrosion: Definition, mechanism of oxidation corrosion, types of oxide films and their significance, factors affecting rate of atmospheric corrosion. Immersed Corrosion: Definition, mechanism of immersed corrosion by galvanic cell action- with evolution of hydrogen gas and absorption of oxygen gas, factors affecting immersed corrosion.

2.2 Protection of metals by

Modification of environment, modification of properties of metal, electrochemical protection by sacrificial anodic protection and impressed current cathodic protection, use of protective coatings. Application of metallic coatings: By galvanising, tinning, metal spraying, electroplating, metal cladding, cementation- sherardizing, chromising, colourising. Application of non-metallic coatings: paint-definition, characteristics, constituents of paint and their functions.

Topic 3 Cells And Batteries

Specific Objectives

- Explain the concept of electrochemical cell.
- Describe construction and working of different types of cells.

Electrochemical cells/ batteries

- Basic concepts : Definition of electrolyte, conductivity of electrolytes, Ohm's law, specific conductance, equivalent conductance, cell, battery, electrolytic cell, electrochemical cell, charging, discharging.
- Classification of electrochemical cells: Primary and secondary cells.
- Primary cells: construction, working and applications of - Dry Cell, Daniel cell.
- Secondary cells: construction, working and applications of - Lead-acid storage cell, Ni-Cd Cell.
- Fuel cell : Definition, construction, working, advantages, limitations and applications of Hydrogen- oxygen fuel cell.

Topic 4 Chemistry of Electronic Materials

Specific Objectives

- State role of polymers in electronic engineering.
- Describe applications of dielectrics and insulators in electronic devices.

4.1 Polymers

Definitions, examples and applications of electrically conducting polymers, photoconductive polymers, electrically insulating polymers, liquid crystal polymers (LCP).

4.2 Insulators, Dielectrics and Adhesives

Definition of dielectrics and insulator, Properties of gaseous, liquid and solid insulators, their examples. Properties and applications of- inert gases, silicone fluids, teflon, bakelite, ceramics and glass.

Definition, characteristics, advantages of adhesives, properties and applications of phenol formaldehyde resin, urea formaldehyde resin and epoxy resin.

Reference :

1. Engineering Chemistry (*S.S. Dara*) S. Chand Publication.
2. Engineering Chemistry (*Jain & Jain*) Dhanpat Rai and Sons.
3. Engineering Chemistry (*B. Sivasankar*) The McGraw-Hill Companies.
4. Environmental Chemistry (*K. B. Chandrasekhar, U. N. Das, Sujatha Mishra*) SCITECH.
5. Website : http://en.wikipedia.org/wiki/conductive_polymer
<http://en.wikipedia.org/wiki/waste-management>
<http://www.footprints-science.co.uk/Chemistry.htm>
<http://www.youtube.com/watch?v=8tqfDE6vqcs&feature=related>
<http://www.splung.com/content/sid/3/page/batteries>
www.teachnet-uk.org.uk/...Metals/...metals/Properties%20of%20Meta...
http://www.substech.com/dokuwiki/doku.php?id=full_index_of_articles_on_ceramics
http://www.substech.com/dokuwiki/doku.php?id=full_index_of_articles_on_polymers
<http://www.powerstream.com/BatteryFAQ.html>
<http://physchem.co.za/OB12-sys/batteries.htm#lead-acid> (Dry Cell & Lead acid cell)
<http://www.kentchemistry.com/links/Redox/flash/RedoxAgentsElectrodesBattery.swf> (Battery)

<http://www.kentchemistry.com/links/Redox/flash/battery.swf>
<http://www.kentchemistry.com/links/Redox/flash/halfcells.swf> (Voltaic Cell)
<http://group.chem.iastate.edu/Greenbowe/sections/projectfolder/animations/ZnCbatteryV8web.html>(Dry Cell)
<http://www.usetute.com.au/battery.html> (Batteries)
http://www.sherardizing.com/resources/files/9_Sherardizing_Corrosion.pdf
(Sheradizing)
http://www.galvanizeit.org/aga/animation/4728?keepThis=true&TB_iframe=true&height=480&width=640 (Galvanizing)
http://www.galvanizeit.org/aga/animation/4728?keepThis=true&TB_iframe=true&height=480&width=640 (Galvanizing)
http://www.ehow.com/list_6725219_different-types-metal-cladding.html (Metal Clading)
<http://www.authorstream.com/Presentation/sheelachawla-590475-insulators/> (Insulators)
http://www.sut.ac.th/engineering/metal/pdf/Nonferrous/02_Aluminium%20and%20aluminium%20alloy.pdf
<http://www.youtube.com/watch?v=zU5sP64DeYA> (Flow chart of extraction of Al)
http://www.youtube.com/watch?v=0Rs4vHo6_oc&feature=related (extraction of Al)
<http://www.youtube.com/watch?v=XWGbUYsChOI> (extraction of Cu)
<fka.ump.edu.my/images/fka/.../5.2%20Adhesives.ppt>
<images.emchiey.multiply.multiplycontent.com/.../08a%20Adhesives...>



Elements of Electronics [EEX]
F.Y. Diploma : Sem. II
[DE/ED/EI/EJ/EN/ET/EV/EX/IC/IE/IS/IU/MU]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	50#	50
Oral Exam	–	–
Term Work	25@	25
Sessional Work (Two Test)	–	25 (each)

SYLLABUS

Topic 1 Passive Components

Specific Objectives

Students will be able to

- Differentiate active & Passive components by observation, specification & application
- Use various passive components as per requirements and applications

1.1 Resistor

- Classifications of resistors, material used for resistor. General specification of resistor- maximum voltage rating, power rating, temp. coefficient, ohmic ranges, operating temperature
- Classification and application of resistor.
- Colour coding: with three, four & five bands.
- LDR–Working, Characteristics & application.
- TDR- listing of its type.
- Potentiometer : linear and logarithmic, constructional diagram, specifications, applications of carbon and wire wound resistor.

1.2 Capacitor

- Classification of capacitor, dielectric materials used in capacitor.
- Capacitor specifications: working voltage, capacitive reactance, frequency characteristic.
- Fixed capacitor : specifications & applications.
- Electrolytic capacitor: constructional diagram & working.
- Variable capacitors: requirement of variable capacitor, construction, working, specification of air gang, PVC gang capacitor, trimmer capacitor.
- Coding of capacitors using numerals, colour band system

1.3 Inductor

- Introduction of magnetic materials- Ferromagnetic & ferrimagnetic. B-H curve, hard & soft magnetic material, concept of Hysterisis, permeability, corecivity, reluctivity & losses in magnetic material.
- Faradays law of electromagnetic induction, self & mutual induced emf.
- Induction – Definition & expression (with simple derivation) of self inductance, mutual inductance, coefficient of coupling, Q factor, inductive reactance.
- Constructional diagram & application of Air core, iron core & ferrite core, inductor frequency range for- AF, RF, IF torodial inductor.
- Working Principle of slug tuned inductor.

- Colour coding of Inductor.

Topic 2 Semiconductor Diodes

Specific Objectives

- Draw symbol and constructional sketch of various types of semiconductor, optical diodes, List diodes for the various applications,
- Understand concepts of PN Junction diode, Zener diode, Special diodes, optical diodes with schematic symbols.

2.1 P.N. Junction Diodes

Working principle & circuit diagram of characteristic of PN junction diode, Static & dynamic resistance, specification, forward voltage drop, maximum forward current power dissipation.

2.2 Zener diode

Constructional diagram, symbol, circuit diagram and characteristics of Zener diode
Specification: Zener voltage, power dissipation, dynamic resistance

2.3 Special Diodes

Construction, symbol & applications of PIN diode, Schottky diode, Tunnel diode

2.4 Optical diodes

Construction, symbol, operating principle & applications of LED, IRLED, Photodiode, Laser diode

Topic 3 Rectifiers and Filters

Specific Objectives :

- Draw circuit of different types of rectifiers.
- Compare different types of rectifiers with respect to their parameters and applications
- Compare different types of filters

3.1 Rectifiers

Need of rectifiers. Types of rectifiers, HWR, FWR (bridge and centre tap) circuit operation I/O waveforms for voltage & current, Parameters of rectifier (without derivation) Average DC value of current & voltage, ripple factor, ripple frequency, PIV of diode, TUF, efficiency of rectifier, Comparison of three types of rectifiers

3.2 Filters

Need of filters, Circuit diagrams, operation and input-output waveforms of following types of filters, Shunt capacitor, Series inductor, LC filter, π filter, Numerical examples based on parameters of rectifiers

Topic 4 Wave shaping Circuit

Specific Objectives :

- Draw circuit of different types of wave shaping circuits
- Compare different types of wave shaping circuits with respect to the parameters and applications

4.1 Linear wave shaping circuit

- Need of wave shaping circuits, comparison between linear and non-linear wave shaping circuits, Operations of wave shaping circuits, Linear circuits: RC Integrator & differentiator

4.2 Non linear wave shaping circuits

- Circuit diagram, operation, waveforms of different types of clippers using diodes: series, shunt, (biased and unbiased), Circuit diagram, operation, waveforms of different types of clampers: positive and negative.

Topic 5 DC circuits and Network Theorems

Specific Objectives

- Able to use basic rules of electrical circuits with the view of solving problems on electrical circuits
- They will be able to use various theorems to determine unknown electrical quantities in the network

5.1 Fundamental of DC circuit

- Review of ohms law,
- Concept of open & short circuit,
- Kirchhoff's current and voltage law,
- Maxwell's loop current method

5.2 Node analysis

- Concept of ideal & practical current and voltage sources source conversion,
- Star/Delta & Delta /Star conversion(no derivations),
- Network terminology- active, Passive, linear, non linear bilateral, unilateral network

5.3 Network theorem : Statement, explanation & applications of following

- Super position theorem,
- Thevenin's theorem, Norton's theorem,
- Maximum power transfer theorem
- Numerical examples on above topic.

Reference :

1. Electronics Device & Circuit Theory (*Robert L. Boylestead, Louis Neshelsky*) Pearson.
2. Basic Electronics & Linear Circuit (*N.N.Bhargava, S.C. Gupta*) Tata McGraw Hill.
3. Electrical Technology (*B.L. Thereja*) S.Chand.
4. Electronics Device & Circuit (*David J. Bell*) Oxford.
5. Websites : www.nptel.com



Development of Life Skills [DLS]

F.Y. Diploma : Sem. II

[All Branches]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	–	–
Practical Exam	–	–
Oral Exam	25@	25
Term Work	–	–

SYLLABUS

Topic 1 SELF ANALYSIS

Specific Objectives

- To introduce oneself.

Contents

- 1.1 Need of Self Analysis
- 1.2 Attitude and types (positive, negative, optimistic and pessimistic) Guidelines for developing positive attitude.

Topic 2 STUDY TECHNIQUES

Specific Objectives

- To identify different process and strategies.
- To improve reading, listening and notes taking skills.

Contents

- 2.1 Learning strategies
- 2.2 Learning process
- 2.3 Organization of knowledge
- 2.4 Reading skills
- 2.5 Listening skills
- 2.6 Notes taking
- 2.7 Enhancing memory

Topic 3 INFORMATION SEARCH

Specific Objectives

- To search information as per the need.

Contents

- 3.1 Sources of information
- 3.2 Techniques of information search (library, internet, etc)

Topic 4 SELF DEVELOPMENT

Specific Objectives:

- To set primary goals using SMART parameters.
- To Priorities the work effectively.

- To cope up with stress effectively.

Contents

- 4.1 Goal setting and its importance.
- 4.2 Characteristics of Goal setting (**SMART**- Specific, Measurable, Attainable, Realistic, Time bound)
- 4.3 Time Management - Importance, prioritization of work, time matrix, time savers, and time wasters.
- 4.4 Stress Management - Definition, types of stress, causes of stress, managing stress, and stress busters.

Topic 5 PRESENTATION TECHNIQUES

Specific Objectives

- To plan for presentation.
- To prepare contents for presentation.

Contents

- 5.1 Importance of presentation.
- 5.2 Components of effective presentation (Body language, voice culture , rehearsal, etc)
- 5.3 Preparing for presentation.
- 5.4 Use of audio/video aids. (audio, video, transparency's, PowerPoint presentations, etc)
- 5.5 Performing presentation (Seminars, paper presentations, compering, etc)

Topic 6 GROUP DISCUSSION

Specific Objectives

- To understand the concept of group discussion
- To know the purpose of group discussion

Contents

- 6.1 Group discussion concept and purpose
- 6.2 Method of conduction

Reference :

1. Target setting and goal achievement (*Richard Hale and Peter Whitlam*) Kogan Page.
2. Successful Presentation Skills (*Andrew Bradbury*) The Sunday Times – Kogan
3. Effective Presentation (*Ros Jay and Antony Jay*) Pearson – Prentice Hall.
4. Handbook on Development of Life Skills (*Subject Experts – MSBTE*) MSBTE
5. Effective Communication and Soft Skills (*Nitin Bhatnagar and Mamta Bhatnagar*) Pearson
6. Business Communication and Soft Skills (*D. Sudha Rani*) Pearson.
7. Personality Development and Soft Skills (*Barak K Mitra*) Oxford University Press
8. Soft Skills for Managers (*Dr. T. Kalayani Chakravarti and Dr. Latha Chakravarti*) Biztantra



Electronic Workshop [EEW]
F.Y. Diploma : Sem. II
[DE/ED/EI/EJ/EN/ET/EV/EX/IC/IE/IS/IU/MU]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	–	–
Practical Exam	–	–
Oral Exam	–	–
Term Work	–	25@

@ – Internal Assessment

SYLLABUS

Job 1 Identify the controls of electronic equipments, test electronic components and observe the waveforms

Skill to be developed : Identification and testing of different instruments for measuring various parameters.

Activity 1 Identify the controls of the Electronic Lab. Equipments (Analog Multimeter, Digital Multimeter, CRO, & Function Generator)

Activity 2 Measure AC & DC Voltage & Current and Resistor using Digital and Analog Multimeter

Activity 3 Test Resistor Capacitors, Inductors and Diodes using CRO

Activity 4 Identify the Square wave, Triangular wave and Sine wave generated by Function Generator and measure their Amplitude and Frequency.

Job 2 Draw circuit diagram of single regulated power supply, test it on breadboard and general purpose PCB

Skill to be developed : Drawing Circuit Diagram. Use of bread board and general purpose PCB. Identify the faults.

Activity 1 Draw circuit diagram of simple single and Dual regulated power supply using 78XX & 79XX regulators.

Activity 2 Test single regulated power supply using 78XX on Bread Board.

Activity 3 Test single regulated power supply using 78XX on general purpose PCB.

Job 3 Prepare Circuit Diagram & PCB LAYOUT for Simple Dual regulated power supply using software on PC

Skill to be developed : Use of electronic software for circuit & PCB artwork drawing.

Activity 1 Identify the features of Electronic Circuit drawing software like Express SCH. Draw circuit diagram of simple Dual regulated power supply and single stage BJT amplifier using Express SCH

Activity 2 Identify the feature of Electronic PCB LAYOUT drawing software like Express PCB. Write PCB artwork rules. And prepare PCB LAYOUT for Simple Dual regulated power supply using Express PCB software.

Job 4 Build and test Simple Dual regulated power supply on PCB

Skill to be developed : Fabrication of PCB, pattern transfer techniques, etching, drilling. Hands on skills for soldering & Troubleshooting of PCB

Activity 1 Fabricate the PCB by pattern transfer, etching, cleaning and drilling

Activity 2 Mount & solder the components on PCB And Testing of soldered PCB for continuity, dry soldering and output

Job 5 Visit the PCB Manufacturing Industry and write the report on it

- Note :
1. All Jobs and activities are compulsory
 2. Industrial visit is compulsory. Prepare Visit Report.

Reference Book

1. Printed Circuit Boards (*Walter C. Bosshart*) Tata McGraw Hill
2. Troubleshooting Electronic Equipment (*R.S.Khandpur*) Tata McGraw Hill
3. Express PCB : <http://www.expresspcb.com/ExpressPCBHtml/Download.htm> *Freeware*
4. Express PCB, EAGLE, Free PCB, PCB123,
<http://www.electronics-lab.com/downloads/pcb/index.html> *Freeware*
5. Press & Peel Pattern Transfer Technique http://www.techniks.com/how_to.htm *Freeware*
6. Video Clip for PCB Manufacturing <http://www.youtube.com/watch?v=CiduYvjVq70> *Freeware*
7. Video Clip for PCB Manufacturing <http://www.youtube.com/watch?v=8-WGaAmpfOU> *Freeware*
8. User Manuals of instruments Manufacturer of Instruments *Freeware*

