



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

CURRICULUM

FOR

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

(FIFTH SEMESTER)

Scheme: Jul.09

Implemented from session: 2009-10

Under semester system





RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 501

NAME OF COURSE: INSTRUMENTATION

SCHEME : Jul.09

PAPER CODE: 6239

COMMON WITH PROGRAM (S): Electrical Engg.

Lectures: **5** Hrs. per week

Practical: **2** Hrs. per week

RATIONALE



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH
COURSE CODE: 501
NAME OF COURSE: INSTRUMENTATION

SCHEME : Jul.09
PAPER CODE: 6239

COMMON WITH PROGRAM (S): Electrical Engg.

Lectures: **5** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

S.No.	Topics	Theory Hrs.	Pract.Hrs.	Total
1	Measuring System	04	02	06
2	Transducers	18	08	26
3	Signal Conditioners	07	04	11
4	Measurement of Physical Quantities	16	08	24
5	Telemetry	14	04	18
6	Data Acquisition System	06	02	08
7	Display Devices and Recorders	10	02	12
	TOTAL	75	30	105



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SEMESTER: FIFTH
COURSE CODE: 501
NAME OF COURSE: INSTRUMENTATION

SCHEME : Jul.09
PAPER CODE: 6239

COMMON WITH PROGRAM (S): Electrical Engg.

Lectures: 5 Hrs. per week
Practical: 2 Hrs. per week

CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	Measuring System Elements of a measuring system, Block diagram of system configuration, performance, standards, time lag, error, distortion and distortion meters, noise and noise factor.	04
02.	Transducers Transducers definition and classification, mechanical devices as primary detectors, Characteristic & choice of Transducers, Electrical transducers, Advantages of electric transducers, Active and passive transducers, Classification, Resistive, inductive and capacitive transducers, Potentiometric, Metallic and semiconductor strain gauges, Gauge factor, types, material used and applications. Thermistor, RTD, Inductive, LVDT, RVDT and Capacitive transducers and their application. Thermocouples, Piezo-Electric transducers, principle, materials used, mode of operation and application. Frequency generating transducers. Hall effect transducers, Opto-electronic transducers such as photo voltaic, Photo conductive, and photo conductive cells, constructional details, characteristics and applications. Photo diodes and transistors, characteristics and applications. Digital transducers, Optical encoders for linear and angular displacement measurement.	18
03.	Signal Conditioners Purpose of signal conditioning, Classification, Input modifier, Operational amplifiers circuits used in instrumentation, D.C. amplifier, chopper amplifier. Instrumentation amplifier, characteristics, three amplifier configuration. A/D and D/A converters.	07



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04.	Measurement of Physical Quantities: Measurement of Pressure-Types of pressure measurement devices, Force summing devices, Secondary transducers, Low pressure measurement, Pirani gauge and thermocouple gauge. Resistive, Inductive and Capacitive pressure measuring devices. Measurement of speed: Measurement of speed by stroboscope, photoelectric and reluctance pick-up devices for speed measurement. Measurement of Vibration-Necessity for Vibration Measurement, Seismic Transducer, Piezo-electric and LVDT Accelerometers. Measurement of Temperature-Temperature measuring devices, Resistance thermometers, Radiation and Optical Pyrometers. Measurement of Flow-Turbine and electromagnetic flow meters, Ultrasonic flow meter, Thermal flow meters. Measurement of Humidity-Humidity, absolute and relative humidity, Resistive and Capacitive hygrometers. Measurement of pH Value-Concept, pH scale, pH cell, pH meter. Measurement of Thermal Conductivity (gas analyzer). Measurement of level: Float and potentiometer method of flow measurement, Resistive and Capacitive methods, Ultrasonic and Gamma rays methods. Measurement of Force and Torque- Electronic weighing system, Hydraulic load cell. Torque measurement, concept, Stress and Deflection type torque measurement methods.	16
05.	Telemetry Necessity, Principle, classification, current and voltage telemetry, Position telemetry, synchros. Frequency and pulse telemetry, Principle of frequency and pulse modulation, PAM, PPM and PCM. Idea about landline and R.F. telemetry and multiplexing. Pulse code format, Modulation techniques of digital data transmission, Digital multiplexers.	14
06.	Data Acquisition System Introduction data acquisition system, generalized DAS, Single and multi channel DAS, Data loggers, Special encoders.	06
07.	Display Devices and Recorders: Digital display system and indicators like CRT, Seven Segment LED, LED, LCD. Analog and digital recorders, Strip and circular chart recorder and Magnetic tape recorder, X-Y recorders. Ultraviolet recorders, Frequency modulated (FM) recording. Digital tape recorders.	10



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COMMON WITH PROGRAM (S): Electrical Engg.

Lectures: **5** Hrs. per week

Practical: **2** Hrs. per week

LIST OF EXPERIMENTS

1. Measurement of Distortion using wave distortion meter.
2. Measurement of load/weight using strain gauge and cantilever.
3. Measurement of linear displacement by LVDT and draw its characteristics.
4. Measurement of temperature by-
(a) Thermocouple (b) Resistance Thermometer
5. Measurement of pressure using LVDT and diaphragm gauge.
6. Study and use of data conversion using ADC and DAC.
7. Measurement of pH value using pH meter.
8. Measurement of Humidity by hygrometer.
9. Study and use of synchros in position telemetry system.
10. Measurement of Vibration using piezoelectric/LVDT transducer.
11. Study and flow measurement using electromagnetic flow meter.
12. Study of time division and frequency division multiplexing.
13. Measurement of liquid level by resistive/capacitive transducer.
14. Study and measurement of temperature using optical and radiation pyrometer.
15. Study of strip chart recorder and magnetic tape recorder.



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COMMON WITH PROGRAM (S): Electrical Engg.

REFERENCES

- (1) Electrical and Electronic Measurement and Instrumentation by A.K. Sawhney
 - (2) Instrumentation Devices and Systems by C S Rangan, G R Sharma and V S V Mani
 - (3) Digital Electronics By Malvino Leach
 - (4) Instrumentation By Cooper
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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 502

NAME OF COURSE: NETWORK ANALYSIS & CIRCUITS

SCHEME : Jul.09

PAPER CODE: 6402

COMMON WITH PROGRAM (S):

RATIONALE



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH
COURSE CODE: 502
NAME OF COURSE: NETWORK ANALYSIS & CIRCUITS

SCHEME : Jul.09
PAPER CODE: 6402

COMMON WITH PROGRAM (S):

Lectures: **6** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

S NO	Topics	Theory hrs	Pract hrs	Total
1	CIRCUIT ANALYSIS	18	6	24
2	NETWORK THEOREMS	17	7	24
3	TWO PORT NETWORK	10	2	12
4	FILTERS	10	2	12
5	SINGLE PHASE AC CIRCUITS	15	7	22
6	POLYPHASE CIRCUITS	15	4	19
7	TRANSIENTS	5	2	7



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SEMESTER: FIFTH

COURSE CODE: 502

NAME OF COURSE: NETWORK ANALYSIS & CIRCUITS

COMMON WITH PROGRAM (S):

Lectures: 6 Hrs. per week

Practical: 2 Hrs. per week

SCHEME : Jul.09

PAPER CODE: 6402

CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
	CIRCUIT ANALYSIS Active and passive elements, ideal current source and voltage source. Unilateral and bilateral elements. Number of loops, nodes, branches of a network. Analysis of networks by Mesh and node methods. Input and output impedance and admittance.	
.	NETWORK THEOREMS Maxwell's loop theorem, Nodal analysis, Superposition, Thevenin's, Norton's and Maximum power theorems with numerical problems	10
	TWO PORT NETWORK Characterization in terms of impedance, admittance, hybrid and transmission parameters T and π equivalent of two port network- Image impedance, characteristic impedance and propagation constant of a symmetrical two port network	
	FILTERS Filter fundamentals, pass and stop bands, constant K low pass filter, Constant K high pass filter, m-derived T and π sections and their applications for infinite attenuation and filter terminations. Band pass and band stop filters. Definition of decibel and neper.	
	SINGLE PHASE AC CIRCUITS Representation of ac quantity by phasor methods, rectangular and polar coordinates, RLC series and parallel combinations. Impedance, power in single phase circuits. Concepts of power factor, conductance admittance and susceptance. Series and parallel circuits. Resonance in series and parallel circuits, Q factor, resonance frequency bandwidth and selectivity.	
	POLYPHASE CIRCUITS Concept of polyphase ac circuits, advantages over single phase, generation of three phase voltage system, Three phase circuits, phase sequence, vector and wave diagrams, star and delta connections, phase and line values of current and voltage. Power in three phase circuits, balanced and unbalanced systems	
	TRANSIENTS Concept of transient, variation of current when connected to dc or ac series circuit. (RL combination and RC combination), Time constant	



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SEMESTER: FIFTH

COURSE CODE: 502

NAME OF COURSE: NETWORK ANALYSIS & CIRCUITS

SCHEME : Jul.09

PAPER CODE: 6402

COMMON WITH PROGRAM (S):

Lectures: **6** Hrs. per week

Practical: **2** Hrs. per week

LIST OF EXPERIMENTS

s.no	Name of Experiment
1	Verification of superposition theorem
2	Verification of thevenins and nortons theorem
3	Verification of maximum power transfer theorem
4	Performance of RLC series circuit
5	Performance of RLC parallel circuit
6	Study of resonance in series and parallel circuits
7	Verification of relation between line and phase voltage and current in 3 phase circuit.
8	Study of transients
9	To determine frequency response characteristics of low high and band pass and stop filters



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SEMESTER: FIFTH

COURSE CODE: 502

NAME OF COURSE: NETWORK ANALYSIS & CIRCUITS

SCHEME : Jul.09

PAPER CODE: 6402

COMMON WITH PROGRAM (S): C/M/E

REFERENCES

1. Data communication and Networking by Behrouz A. Forouzan
2. Data communication by William Schweber
3. Computer Networks by Tenenbaum
4. Introduction to Digital & Data communication by Michael A. Miller
5. IBM PC and Clones by Govindrajalu
6. Electronic Communication Systems by Wayne Tomasi
7. Welcome to Internet by Tom Badgett and Corey Sandler
8. Web Based Learning Material on Computer Networking by IIT, Mumbai



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH
COURSE CODE: 503
NAME OF COURSE: SWITCH GEAR & PROTECTION

SCHEME : Jul.09
PAPER CODE: 6403

COMMON WITH PROGRAM (S):

RATIONALE

As a result of growth and research in power systems, there have been enormous changes in switchgear and Protection Engineering. The use of electronics in protection systems has been an essential requirements to ensure quick response and reliability. The technician needs to understand the working, operation and characteristics of the protective gear while working in different segments of the power system.

OBJECTIVES.

As the end of the course, the students will be able to :-

1. Under stand the need of protection in a power system.
2. Explain the working of different switchgears and protective devices.
3. Describe the methods of protection against (a) Over current (b) Over voltage and different protection scheme.



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 503

NAME OF COURSE: SWITCH GEAR & PROTECTION

SCHEME : Jul.09

PAPER CODE: 6403

COMMON WITH PROGRAM (S):

Lectures: **5** Hrs. per week

SCHEME OF STUDIES

S. NO.	TOPIC	SCHEME OF STUDIES	
		Hrs. of Study	
		Theory	Total
1	Introduction	7	07
2	Circuit interruption devices	16	16
3	Protective Relays	16	16
4	Protection against over voltage	16	16
5	Protective Schemes	20	20
	TOTAL	75	75



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 503

NAME OF COURSE: SWITCH GEAR & PROTECTION

COMMON WITH PROGRAM (S):

SCHEME : Jul.09

PAPER CODE: 6403

Lectures: 5 Hrs. per week

S.No.	Detailed Course Content	Hours of Study
1.	Introduction - Purpose of protective system, requirement and selection. Abnormalities in a power system and their effects. Reasons for failure. Self and non self clearing faults. Use of CT/PT in protective scheme. Definition of terms regarding CT/PT. Advantages of CT/PT. Neutral earthing, their methods and advantages.	07
2	Circuit interruption devices - Function of fuse. fusing factor, fusing characteristic. Application of isolator and circuit breakers. Circuit breaker capacities. Arc formation in C.B. and methods of arc extinction. Definition of various terms with reference to circuit interruption wave form. working principle and operation of Bulk Oil/Minimum oil/air blast/SF CB. Merits and Demerits of different types of C.B.	16
3.	Protective relay – Type of relays- induction, electromagnetic, thermal. Primary and back up relaying. Types of back up relays, causes of failure of primary relaying. Explanation of terms used in relaying. Principle and working of different types of relays- electromagnetic and induction type. Induction type over current relay, reverse power relay, time and current settings. Differential relays., distance relays, thermal relays, inverse current characteristics.	16
4.	Protection against over voltages - Causes and effects of over voltage. Traveling wave. Over-voltage protection, earth wire, lightning arresters- Multiple gap type, horn gap type, line type, station type and distribution type. Surge absorber.	16
5.	Protective schemes - Protection of alternator- various abnormalities, Merz price differential protection, over current and earth fault protection. Protection of transformer - various abnormalities, differential protection, Buchholz relay. Feeder and transmission line protection - time graded and over current protection, current graded system, differential protection. Protection of Induction motors, use of thermal relays and under voltage protection	20



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 504

NAME OF COURSE: UTILIZATION OF ELECTRICAL POWER

SCHEME : Jul.09

PAPER CODE: 6242

COMMON WITH PROGRAM (S): ELECTRICAL

Lectures: **4** Hrs. per week

Practical: **2** Hrs. per week

RATIONALE

Electrical energy is utilized by a large number of consumers in industrial, commercial, service and domestic sectors for different purposes ranging from drives, heating, illumination, chemical process, welding to electroplating. A technician must be familiar with the how and why of all these applications of electrical power.

OBJECTIVES.

At the end of the course, the students will be able to :-

1. Select electrical drives for different applications based on their characteristics.
2. Select and use appropriate Heating and welding equipment and explain their working.
3. Operate and control 3 phase induction motors and synchronous motors.



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 504

NAME OF COURSE: UTILIZATION OF ELECTRICAL POWER

SCHEME : Jul.09

PAPER CODE: 6242

COMMON WITH PROGRAM (S): ELECTRICAL

Lectures: **4** Hrs. per week

Practical: **2** Hrs. per week

SCHEME OF STUDIES

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Electrics drives	16	10	26
2.	Electric Heating	10	6	16
3.	Electric welding	06	2	8
4.	Illumination	12	4	16
5.	Power factor improvement	6	4	10
6.	Electro Chemical process & Storage Batteries	10	4	14
	Total	60	30	90



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 504

NAME OF COURSE: UTILIZATION OF ELECTRICAL POWER

COMMON WITH PROGRAM (S): ELECTRICAL

Lectures: 4 Hrs. per week

Practical: 2Hrs. per week

SCHEME : Jul.09

PAPER CODE: 6242

S.No.	Detailed Course Content	Hours of Study
1.	Electric drives Merits and demerits of electric drives, factors governing selection of motors, drive requirements. Group and individual drive, starting and running characteristics of various motors. Selection of starters, hand operated and contactor type starters, liquid resistor type starter. Speed control of motors, load equalization, use of fly wheel. Motor enclosures, selection of motors for particular service, size and rating of motors.	16
2.	Electric heating Advantages and disadvantages of electric heating, methods of electric heating. Principle of electric heating. Resistance heating, heating elements and alloys. Causes of failures of heating elements. Arc furnaces, principle, construction, working and uses. Induction heating principle, construction and use of Ajax Wyatt (core type) and coreless type. L.F. and H.F. induction furnaces. Dielectric heating principles and uses.	10
3.	Electric welding Definition, classification of electrical welding, principle of arc welding. Qualities of a good weld. Welding defects. Resistance welding, advantages, classification, principle and working, comparison of resistance and arc welding process, A.C. & D.C. arc welding.	6
4.	Illumination Electromagnetic wave spectrum, solid and plane angle, definition of electrical terms in use, sensitivity of human eye. Luminous efficiency, horizontal and vertical laws of illumination, definition of terms used in lighting, lighting scheme, various types of lamps, their use and fittings.	12
5.	Power factor improvements Causes of low P.F., effects of low P.F., methods of improvement of P.F. and its economics.	6
6.	Electro-chemical processes and storage batteries Electro deposition and faraday's laws of electrolysis, various electro-chemical processes like electroplating, electro-extraction, regions. Storage batteries, classification, construction. Battery maintenance, battery charging, circuit diagram. Application of storage batteries.	10



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 504

NAME OF COURSE: UTILIZATION OF ELECTRICAL POWER

COMMON WITH PROGRAM (S): ELECTRICAL

Lectures: 4 Hrs. per week

Practical: 2Hrs. per week

SCHEME : Jul.09

PAPER CODE: 6242

LIST OF PRACTICALS

S.No.	Name of experiments	Hours of study
1.	Speed control of slip ring induction motor by variation of rotor resistance.	30 Hours
2.		
3.	To verify the change in power factor by changing load parameters and its improvement using capacitance.	
4.		
5.	To draw 'V' curves of synchronous motor.	
6.		
7.	Study and operation of resistance oven and to control its temperature.	
8.		
9.	Study of dielectric / induction heating.	
10.	Measurement of luminous efficiency of lamps by lux meter.	
	Study and operation of various types of lamps.	
	Study of arc welding.	
	Report on visit/ video demonstration on heating system.	
	Report on visit/video film on welding system	



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COURSE CODE: 504

NAME OF COURSE: UTILIZATION OF ELECTRICAL POWER

SCHEME : Jul.09

PAPER CODE: 6242

COMMON WITH PROGRAM (S): ELECTRICAL

Lectures: **4** Hrs. per week

Practical: **2**Hrs. per week

REFERENCE



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

SCHEME : Jul.09

COURSE CODE: 505

PAPER CODE: 6404

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG.

COMMON WITH PROGRAM (S):

Lectures: **6** Hrs. per week

Practical: **2**Hrs. per week

RATIONALE

The goal of communication system is to send information from one point to another. The course aim is that the diploma engineer gain knowledge about basic communication terms like Modulation and multiplexing to enter into exciting field of Electronic Communication.

This course also includes line communication and related systems in order to develop skills to use, monitor, test and maintain these systems, so that their job potential can fulfill the employment demand of organization such as telecom industry and international communication sectors.

Upon completion of this course, the student will be able to:

- Understand the basic concepts of communication;
- explain the difference between analog and digital systems;
- discuss the basic concepts of information theory;
- recognize and illustrate the various types of modulation techniques;
- illustrate a typical multiplexing signal;
- discuss the basic concepts dealing with the operation of the systems like Computer Network



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 505

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG.

SCHEME : Jul.09

PAPER CODE: 6404

COMMON WITH PROGRAM (S):

Lectures: **6** Hrs. per week

Practical: **2** Hrs. per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS.)	TOTAL (HRS)
1.	Introduction to communication	05	--	05
2.	Modulation techniques	15	10	25
3.	Multiplexing techniques	10	05	15
4.	EM Wave propagation and Antenna	10	05	15
5.	Present day Communication systems	10	05	15
6.	Local Area Network	10	05	15
	TOTAL	60	30	90



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SEMESTER: FIFTH

SCHEME : Jul.09

COURSE CODE: 505

PAPER CODE:6404

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG.

COMMON WITH PROGRAM (S):

Lectures: 6 Hrs. per week

CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	Introduction to communication: <ul style="list-style-type: none">- Meaning of communication- Kinds of communication: Verbal & Non verbal, Machine communication- Purpose of communication: Information, persuasion, entertainment, education, control- Concept of communication system: Information, transmission, channel, reception, basic block diagram.- Allocation of frequency spectrum for communication- Define: Attenuation (in dB), bandwidth- Noise, source and types, signal to noise ratio, noise figure (definitions only)- Analog signal- Digital signal- Comparison between Analog and Digital communication- Advantages of digital communication systems	05
02.	Modulation techniques <ul style="list-style-type: none">- Need of modulation- Analog Modulation Amplitude Modulation (AM): basics, modulation index, bandwidth and signal power, DSB, SSB and VSB, AM features and Drawbacks.- Frequency Modulation (FM): basics, modulation index, FM spectrum and Bandwidth, FM features, comparison with AM- Pulse Modulation: Graphically explanations of pulse amplitude modulation (PAM), pulse width modulation (PWM), pulse position modulation (PPM)- Pulse Code Modulation (PCM): sampling, Quantization and encoding, data rate for digital voice channel- Digital Modulation techniques: Graphically explanations of NRZ, RZ, Manchester, binary ASK, FSK, PSK, Quadrature Modulation	15



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH
COURSE CODE: 505

SCHEME : Jul.09
PAPER CODE: 6404

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG.

COMMON WITH PROGRAM (S):

Lectures: **6** Hrs. per week

03.	Multiplexing Techniques <ul style="list-style-type: none">- Need of multiplexing- frequency division multiplexing(FDM)- time division multiplexing (TDM)- comparison between FDM and TDM- Digital system hierarchy in India- Multiple Access: TDMA, FDMA, CDMA,SDMA	10
04.	EM Wave propagation and Antenna <ul style="list-style-type: none">- Define EM waves- Types of EM wave propagation: Ground wave, Sky wave, Space wave- Concept of radiation of Electromagnetic energy- Define point source, gain, directivity, radiation pattern, Beam width- Explain with figure the different types of antenna: half wave dipole, folded dipole, Yagi-Uda, parabolic reflector antenna.- State the application of each type.	10
05.	Modern Communication systems Block diagram, advantages and Application of followings: <ul style="list-style-type: none">- Optical Fiber Communication- Satellite Communication- Cellular Communication- Data Communication	10
06.	Local Area Network <ul style="list-style-type: none">- Concept of Computer Network- Categories Networks: LAN, MAN and WAN- advantages of LAN- Network topologies- Component of Computer Networks: Understand working and application of:<ul style="list-style-type: none">- Server & Workstation- NIC- Hub- Switch- Router- Cabling: structure and specifications of:<ul style="list-style-type: none">- UTP, STP, Co-axial and Optical Fiber- Knowledge of LAN Software	10



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SEMESTER: FIFTH

SCHEME : Jul.09

COURSE CODE: 505

PAPER CODE: 6404

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG

COMMON WITH PROGRAM (S):

Practical: 2 Hrs. per week

LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
	Perform various experiments on Communication Trainers such as:-	30
1.	Study of Amplitude Modulation	
2.	Study of Frequency Modulation	
3.	Determine the percentage of modulation	
4.	PAM, PWM, PPM Circuits for Modulation and Demodulation	
5.	Study of ASK, FSK, PSK, QAM Signals.	
6.	Study of PCM - Pulse Code Modulation	
7.	Study of FDM and TDM	
8.	Establish Optical Fiber Communication link	
9.	Establish Data Communication link	
10.	Study of various data transmission cables like coaxial, UTP and optical fiber and their connectors	
10	Study of Network Operating Systems available in the Lab	
11	Installation and Configure Server and Workstation software	
12	Study of Various Interconnecting devices like NIC, Hub, Switch etc.	
13	study of Internet for data transfer and its various applications	



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COURSE CODE: 505

PAPER CODE: 6404

NAME OF COURSE: ELECTRONICS COMMUNICATION ENGG.

COMMON WITH PROGRAM (S):

REFERENCES

1. Electronics Communication Systems, Kennedy
2. Electronic Communication System, William Schwber
3. Electronic Communication System, Wayne Tomasi
4. Data Communication and Networking, Behrouz A. Forouzan
5. Electronic Communication Systems, Dennis Roddy & John coolen Prentice Hall of India
6. Modern Digital and Analog Communication Systems, B.P Lathi, Oxford University Press.



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 506

NAME OF COURSE: PROFFESIONAL ACTIVITIES (PA)

SCHEME : Jul.09

PAPER CODE:

COMMON WITH PROGRAM (S): C/M/E

Practical: 2 Hrs. per week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organization of student chapter activities of professional bodies) i.e. Institute of engineers, ISTE or Computer Society of India etc.)
- TO allow for development of abilities in students for leadership and public speaking through organization of student's seminar etc.
- To provide time for organization of guest lectures by expert engineers/eminant professionals of industry.
- To provide time for organization of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for social cause like awareness for environmental and ecology etc.



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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER: FIFTH

COURSE CODE: 506

NAME OF COURSE: PROFESSIONAL ACTIVITIES (PA)

SCHEME : Jul.09

PAPER CODE:

COMMON WITH PROGRAM (S): C/M/E

DETAILED INSTRUCTIONS TO CONDUCT PROFESSIONAL ACTIVITIES:

- A. Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.
- B. This course should be evaluated on the basis of grades and marksheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in professional activities(PA).
- C. Following grade scale of evaluation of performance in PA has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

- D. Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.
- E. Assessment of performance in PA is to be done internally by the Institution, twice in a Semester/Term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. Concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective Semester/Term.

Candidate abstaining from the prescribed course work and/or assessment planned at the Institute shall be marked ABSENT in the mark sheet, instead of any grade.

- F. While awarding the grades for performance in PA, examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (collection of relevant data, observations, analysis, findings/conclusion) and its written report, awareness of latest developments in the chosen programme of study.
- G. Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.
- H. It shall be mandatory for students to submit a compendium for his PA in the form of a Journal.



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SCHEME : Jul.09
PAPER CODE:

COMMON WITH PROGRAM (S): C/M/E

- I. Compendium shall contain following:
 1. Record of written quiz.
 2. Report/write up of seminar presented
 3. Abstract of the guest lectures arranged in the Institution.
 4. Topic and outcome of the group discussion held.
 5. Report on the problems solved through case studies.
 6. Report on social awareness camps(organized for social and environmental prevention).
 7. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.
- J. PA is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to a number of teachers so that the talent and creativity of group of teacher's benefit the treatment of the course content. These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, roll play and simulation to make the development of personality affective.

Treatment of PA demands special efforts, attention, close co-operation and creative instinct on the part of teachers of department concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of student, among themselves and with the teachers. The guide teacher/s shall best act as a facilitator of these creative hunts/ exercises, which unfold many of the hidden talents of the students or bring out greater amount of confidence in them, to execute certain activity.

