

CURRICULUM

FOR

**DIPLOMA IN ELECTRONICS AND
TELECOMMUNICATION ENGINEERING**

(SIXTH SEMESTER)

Scheme: Jul.08
Implemented from session: 2009-10

Under semester system



JULY 2008

**CURRICULUM DEVELOPMENT CENTRE,
DEPARTMENT OF ELECTRONICS AND OPTO-ELECTRONICS
(SHRI VAISHNAV POLYTECHNIC COLLEGE, INDORE)**



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **601**

NAME OF COURSE: **CONSUMER ELECTRONICS**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):

PAPER CODE:

RATIONALE

This course is designed to provide required knowledge and skills in the communication systems such as Microphone and Loudspeakers and radio receiver. The student investigates more complex communication systems and equipments such as B/W Television, Colour Television and Audio CD Players.

As per present requirement in society, descriptions of some of the modern security systems are also included in the course.

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

- discuss the basic concept dealing with the operations of audio transducers
- observe, measure and record typical waveforms found in the above mentioned
- Align and troubleshoot various consumer appliances
- Discuss the basic concepts dealing with the operation of B/W Television circuits Color Television circuits, CD players circuits.
- Make use of special Equipments such as spectrum and Wave Analyzer, TV Sweep, Generators, DOT-BAR Generator and CRT Testers.



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**
COURSE CODE: **601**
NAME OF COURSE: **CONSUMER ELECTRONICS**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S):
PAPER CODE:

Lectures: **4 Hrs.** per week
Practical: **2 Hrs.** per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS.)	TOTAL (HRS)
1.	AUDIO TECHNOLOGY	10	05	15
2.	BROADCASTING RECEIVER	10	05	15
3.	TV TECHNOLOGY	15	08	23
4.	MEDIA PLAYERS	10	05	15
5.	MULTIMEDIA	10	05	15
6.	SECURITY AND SAFETY SYSTEM	05	02	07
	TOTAL	60	30	90



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NAME OF COURSE: **CONSUMER ELECTRONICS**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S):
PAPER CODE:

Lectures: **4 Hrs.** per week

CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	Audio Technology <ul style="list-style-type: none">- Principle & working of microphone- types of microphone and their application:<ul style="list-style-type: none">- Carbon granule microphone- Condenser- Ribbon- crystal- Principle & working of speakers- types of speakers: PMMC- Frequency response of speaker- Audio amplifier- application of audio amplifiers: PA system	10
02.	Broad Casting Receiver <ul style="list-style-type: none">- AM Receiver: Explain-<ul style="list-style-type: none">- TRF- super heterodyne- Double heterodyne- FM Receiver<ul style="list-style-type: none">- Ratio Detector- Foster seeley phase discriminator- FM Channels- Qualities of receivers	10
03.	TV Technology <ul style="list-style-type: none">- Principles of Television:<ul style="list-style-type: none">- TV standards- Scanning- Video Bandwidth- Modulation techniques- Channel allocation- Composite Video signal	15

S.No.	Course Contents	Hrs of Study
	<ul style="list-style-type: none"> - TV Camera – Principle & working of Vidicon TV Camera. - TV Receiver – <ul style="list-style-type: none"> - block diagram and working of B&W receiver and PAL Receiver - Display Technologies: <ul style="list-style-type: none"> - CRT Monitor - LCD Monitor - PLASMA monitor 	
04.	<p>Media Players</p> <ul style="list-style-type: none"> - Block Diagram of Players: <ul style="list-style-type: none"> - Audio CD Players - Video CD Players - DVD Players - Introduction to Blue Ray disc player, HD DVD 	10
05.	<p>Multimedia</p> <ul style="list-style-type: none"> - Introduction to multimedia, Different audio and video formats related to multimedia, MPEG1, MPEG2, MPEG3, MPEG4, Multimedia editing tools- Movie Maker, Nero wave Editor. - Application of multimedia in education, entertainment, advertisement, research. - PROJECTORS : <ul style="list-style-type: none"> - DLP Projector - LCD Projector - LED Projector 	10
06.	<p>Security & Safety System:</p> <ul style="list-style-type: none"> - Burglar's alarm - Video door phone - CCTV - Electronic combination locks - Fire alarm. 	05



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COURSE CODE: **601**
NAME OF COURSE: **CONSUMER ELECTRONICS**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S):
PAPER CODE:

Practical: **2 Hrs.** per week

LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
1.	Study of different microphones & speakers	30
2.	Plotting of directional property of microphones & speakers	
3.	Frequency response character of microphones & speakers	
4.	Study of audio amplifiers stages (pre amplifier, voltage amplifier, power amplifier)	
5.	Study of AM receiver characteristics i.e sensitivity, selectivity, fidelity, SNR, stability	
6.	Study of FM receiver characteristics i.e sensitivity, selectivity, fidelity, SNR, stability	
7.	Demonstrate B/W TV receiver	
8.	Demonstrate Color TV receiver	
9.	Study of composite video signal using pattern generator	
10.	Market survey of different types of monitors & their comparison	
11.	Assembly & disassembly of CD player mechanism	
12.	Market survey & comparison of different types of monitors i.e LCD, CRT, LED monitors	
13.	production of multimedia CD using general multimedia software i.e Movie maker	
14.	Study of multimedia format	
15.	study of security and safety systems	



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COURSE CODE: 601

NAME OF COURSE: CONSUMER ELECTRONICS

SCHEME: Jul.08

COMMON WITH PROGRAM (S):

PAPER CODE:

LIST OF EQUIPMENT

1. B & W TV Trainer
2. Color TV Trainer
3. 3 Band AM/FM/SW Radio Receiver Trainer
4. RF Signal Generator
5. TV Pattern Generator
6. Sound Level Meter
7. Audio Output Power Meter
8. Low distortion Audio Generator
9. FM Stereo Trainer
10. VCD Player Trainer
11. Programmable Signal Generator
12. Multiple Power Supply
13. Function Generator
14. C.R.O. (Cathod Ray Oscilloscope)
15. Multimeter



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NAME OF COURSE: **CONSUMER ELECTRONICS**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S):
PAPER CODE:

REFERENCES

1. Monochrome & Color TV- R.R. Gulati
2. Television – Dhake
3. Audio & Video Techniques- R.G.Gupta
4. Electronic Communication- Roody & Coolen
5. Electronic Communication System – Kennedy
6. Audio & Video Techniques- Ajay Sharma



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 602

NAME OF COURSE: ADVANCED COMMUNICATION

SCHEME: Jul.08

COMMON WITH PROGRAM (S):

PAPER CODE:

RATIONALE

The course will be useful to update the knowledge of students about new advancement in communication. The course aim is to provide knowledge about advancement in concept, equipment and process of communication at various frequencies.

The subject deals with higher bandwidth communication system for data transmission, like Optical fiber communication. It also covers satellite communication, RADAR and popular mobile communication. Some of the recent developments are also included at the end of this course.

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

- familiar to modern electronic communication systems;
- understand Optical fiber communication system and its advantages;
- describe functioning of mobile system;
- Apply knowledge of microwave equipment for communication applications;
- Get acquainted to serve in communication industry.



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **602**

NAME OF COURSE: **ADVANCED COMMUNICATION**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):

PAPER CODE:

Lectures: **4 Hrs.** per week

Practical: **4 Hrs.** per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS.)	TOTAL (HRS)
1.	OPTICAL FIBER COMMUNICATION	15	20	35
2.	CELLULAR COMMUNICATION	10	10	20
3.	SATELLITE COMMUNICATION	15	10	25
4.	RADAR	15	10	25
5.	EMERGING TRENDS IN TECHNOLOGY	05	10	15
	TOTAL	60	60	120



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SEMESTER: **SIXTH**

COURSE CODE: **602**

NAME OF COURSE: **ADVANCED COMMUNICATION**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):

PAPER CODE:

Lectures: **4 Hrs.** per week

CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	Optical fiber communication <ul style="list-style-type: none">- Light propagation through optical fiber:<ul style="list-style-type: none">- basic fiber structure- total internal reflection- Numerical Aperture- Acceptance angle- Attenuation in optical fiber- Dispersion: basics of Modal dispersion, Material and waveguide dispersion, relation between data rate and dispersion- Types of fibers:<ul style="list-style-type: none">- Single mode fiber- Multimode fiber- Graded index fiber; comparison- Structure of Fiber optics cables- Optical Communication system: block diagram- Light source: LED and Laser Diode- Detectors: PIN photodiode and Avalanche photodiode- Specification criteria in selection of transmitter & receiver- Tool for Installation and maintenance: Application of: Optical power meter, OTDR, Fusion Splicing Machine	15

S.No.	Course Contents	Hrs of Study
02.	<p>Cellular Communication</p> <ul style="list-style-type: none"> - The Cellular Concept - Frequency bands and cellular coverage - Geometry of a cell: Cell size and Number of possible users - Frequency reuse and hand-off - Cellular system implementation: <ul style="list-style-type: none"> - Cell office - MTSO - Block diagram of cellular hand set - Introduction to handset operating systems - Access technology- FDMA, TDMA & CDMA, comparison - GSM Services- speech, group call and related services, general packet radio service (GPRS), short message services (SMS) - CDMA based digital cellular system, spread spectrum modulation, frequency hopping - Features of Third generation cellular service 	10
03.	<p>Satellite Communication</p> <ul style="list-style-type: none"> - advantages and disadvantages of Satellite system - Frequency bands, Uplink and Downlink frequencies - Satellite basics- Orbits, Altitude, footprint - Low orbit regional satellites, Geostationary satellite - Satellite system link model- uplink, transponder, downlink, cross link - Block diagram of Satellite Earth station - Block diagram of Satellite and communication transponder - Satellite multiple access- FDMA, TDMA & CDMA - TV channel reception via Satellite - Global Positioning System (GPS) and GPS Navigation basics - Direct to home (DTH) basics 	15
04.	<p>RADAR:</p> <ul style="list-style-type: none"> - Basic RADAR system and applications - Frequencies and Powers used in RADAR - Definition of Range, pulse width, PRF, duty cycle - RADAR Range equation and factors that affect Range - Scanning methods, Search and Track RADAR system - Display method: PPI - Basic pulsed RADAR system - MTI and CW Doppler RADAR 	15

S.No.	Course Contents	Hrs of Study
05.	Emerging Trends in Technology <ul style="list-style-type: none">- Bluetooth Technology:<ul style="list-style-type: none">- Introduction- Standards- Services- applications- Introduction to IP TV- iPhone- Introduction to WAP, EDGE, HSPDA, OTA, VOIP	05



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COURSE CODE: **602**

NAME OF COURSE: **ADVANCED COMMUNICATION**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):

PAPER CODE:

Practical: **4 Hrs.** per week

LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
1.	Measurement of attenuation in optical fiber (a) Measurement of Propagation loss (b) Measurement of bending loss	60
2.	Measurement of numerical aperture	
3.	Measurement of characteristics of fibre optic LED and photo detector.	
4.	Measurement of Radiation Pattern of LED	
5.	Forming simple fibre optic analog link.	
6.	Study of PC- to- PC communication using optical fiber link and two RS 232 cards.	
7.	Setting up CW Doppler RADAR and measure speed of a moving object	
8.	Experiments based on Mobile communication	
9.	Experiments based on GPS system	
10.	Experiments based Satellite communication	
11.	Experiments based on Bluetooth devices	



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COURSE CODE: 602

NAME OF COURSE: ADVANCED COMMUNICATION

SCHEME: Jul.08

COMMON WITH PROGRAM (S):

PAPER CODE:

LIST OF EQUIPMENT

1. Fiber Optic Transmitter Trainer Kit
2. Fiber Optic Receiver Trainer Kit
3. Optical Power Meter
4. OTDR
5. Optiscope
6. LED Radiation Pattern Trainer
7. Spectrum Analyzer
8. Mobile Phone Trainer
9. GSM Trainer
10. Navigation and GPS Trainer
11. Satellite Communication Trainer
12. RADAR Trainer
13. CDMA Trainer
14. Function Generator
15. CRO



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 611

NAME OF COURSE: COMPUTER PROGRAMMING

SCHEME: Jul.08

COMMON WITH PROGRAM (S): 001

RATIONALE

The knowledge of programming languages is very essential for any technical student. In the development of computer programming, many languages have come, but the 'C' is the only language that is recognized very well in electronics, because this programming language is very near to machine language. Most of the available devices and microcontrollers are programmed via 'C'. That's why it is known as middle level language.

This practical based course is not only emphasizing on 'C' but also introducing other OOPs languages like C++ and java at very elementary level. So that the student will feel comfortable, whenever upgrade him/her self to other programming languages.

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

- Write and run programs on C.
- Debug and familiarize the errors in program.
- Understand the flow of program as it run.
- Understand pointer and functions
- Understand elementary knowledge of C++ and Java.



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **611**

NAME OF COURSE: **COMPUTER PROGRAMMING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Lectures: **6 Hrs.** per week

Practical: **2 Hrs.** per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS)	PRACTICAL (HRS)	TOTAL (HRS)
1.	PROGRAMMING CONCEPTS	6	2	8
2.	FUNDAMENTALS OF C	10	2	12
3.	OPERATORS IN C	12	4	16
4.	CONTROL STATEMENTS	12	4	16
5.	FUNCTIONS	12	4	16
6.	ARRAY, STRING & POINTER	14	6	20
7.	BASICS OF STRUCTURE, UNION and FILES	12	4	16
8.	OTHER PROGRAMMING LANGUAGE	12	4	16
	TOTAL	90	30	120



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **611**

NAME OF COURSE: **COMPUTER PROGRAMMING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Lectures: **6 Hrs.** per week

CONTENT DETAILS

Sr.no	Course content	Study of hours
01	Introduction program concept, Assembler, Compiler & Interpreter, characteristics of a good program, various stages in program development, Algorithms, Flowcharts, pseudo-codes, programming technique- top down, bottom-up, structured programming.	6
02	Fundamentals of C History & Features of C, C program structure, pre-processor directives, C tokens-character set, keywords, identifiers, constants, variables, data types, data types conversion, Expressions, Statements, Use of header files, Defining macros, input/output functions- printf(), scanf(), getchar(), putchar(), gets(), puts() etc. Formatted I/O using control string.	10
03	Operators in C Arithmetic Operators, Logical Operators, assignment operator, Relational Operators, Bitwise Operators, Special Operators: exp, exit(), sizeof(), increment and decrement (post and pre) operators-precedence & associativity, Type casting, C expression data type, order of evaluation of expression	06
04	Control Statements Loop statements: for statement, while statement, Do-while statement, break-continue statement, nested loop. Branching statements: if statement, if- else, nested if. Unconditional branching: goto statement Multiple branching statements: switch case statement.	18
05	FUNCTIONS Basics of function, types of C Functions, Bindings of function, parameters of functions, local and global variables. User-defined Functions - Function declaration, Function prototype, scope and life of variable-actual, formal, call by value, call by reference. Implementations, Accessing a Functions, Arguments and Parameter passing mechanisms, recursion, Storage classes – static auto, extern, and register. built-in function: declaration, Accessing, Parameter passing.	12

Sr.no	Course content	Study of hours
06	<p>ARRAY, STRING & POINTER</p> <p>Array Concept of one dimensional and Multi-dimensional array, array declaration, Array initialization, operations on one and two-dimensional arrays.</p> <p>String Manipulations Strings, gets(), puts(), string operations, string function (concatenation, comparison, length of a string etc.)</p> <p>Pointers Definition, Types, Declaration, & and * operator, pointer expression, pointer arithmetic, pointer to pointer, array of pointer, pointer to function. Dynamic memory management -malloc(), calloc() and free.</p>	14
07	<p>BASICS OF STRUCTURE, UNION and FILES</p> <p>Structure: Definition, Declaration, initializing structure, membership operator, accessing structure elements</p> <p>Union:- Definition, Declaration and Implementations</p> <p>File handling: File system basics, Opening & closing file, Reading & writing in file, File opening modes, String I/O in files.</p>	12
08	<p>OTHER PROGRAMING LANGUAGES:</p> <p>Basic Concepts Of Object Oriented Programming, Classes and Objects, Inheritance, Polymorphism, Abstraction, Encapsulation, Dynamic Binding, Message Passing, Fundamental Understanding and programming of C++, Characteristics and Features of C++, Difference between C and C++, Applications of C++, Fundamental Understanding and programming of Java, Characteristics and Features of Java, Applications of Java, Difference between C++ and Java.</p>	12



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **611**

NAME OF COURSE: **COMPUTER PROGRAMMING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Practical: **2 Hrs.** per week

LIST OF EXPERIMENTS

S.No.	Name of Experiment	Hrs of Practical
1	Working with turbo C editor	30 Hrs
2	Program using printf() scanf() and formatted I/O, string manipulations. Defining and using Macros	
3	Program using Operators	
4	Program using various Control Statements	
7	Program using Single dimensional and Two-dimensional array.	
8	Program using Functions.	
9	Program using call by Value & Call by reference	
10	Program using Static, Auto, & Extern function.	
11	Program using Structure & Union.	
12	Program using Pointers & Files.	
13	Program to print hello using classes in c++	
14	Program to print hello in java.	
16	Program to learn, to write assembly language in C	
15	One Small Project must be develop in C & C++ language	



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 611

NAME OF COURSE: COMPUTER PROGRAMMING

SCHEME: Jul.08

COMMON WITH PROGRAM (S): 001

Lectures: **6Hrs.** per week

Practical: **2Hrs.** per week

REFERENCES

Text Book:

1. Programming in C, Balaguruswami
2. Let us C, Y. Kanetker

Further Readings:

1. Theory and problems of programming with 'C', Gottfried., Schaum's series
2. Chapman, Understanding windows, BPB Publication
3. C: the complete reference, Herbert schildt, 4 edition, McGraw-Hill Osborne Media
4. Complete reference of C++,
5. Programming in C++, Balaguruswami
6. Complete reference of JAVA



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 612

NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLERS

SCHEME: Jul.08

COMMON WITH PROGRAM (S): 001

RATIONALE

Modern Industrial environment is guided with the latest technological advancement in computers and communication. Programmable Logic Controllers based automation is the outcome of that.

In view of keeping industrial automation a technician play an important role in maintaining normal working of control system. It is also necessary that a technician must understand modern control devices and schemes.

The curriculum has been designed to meet the requirements of a technician engineer, so that he can skillfully handle the problems of industrial automation and control system. The contents included in the subject are kept at level to develop proper skills, knowledge and attitude suiting to the job requirement.



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **612**

NAME OF COURSE: PROGRAMMABLE LOGIC CONROLLERS

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

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 PLC	9	2	11
2.	PLC Hardware, Timers & Counters	18	6	24
3.	Advance Instruction & Programming Techniques	18	4	22
4.	PLC Input-Output (I/O) Modules Power Supply	18	4	22
5.	PLC Applications	15	6	21
6.	Industrial Automation & Selection of Programmable Logic Controllers	12	8	20
	TOTAL	90	30	120



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **612**

NAME OF COURSE: PROGRAMMABLE LOGIC CONROLLERS

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Lectures: 6 Hrs. per week

Practical: 2 Hrs. per week

CONTENT DETAILS

Sr.no	Course content	Study of hours
01	Introduction to PLC- 1.1 What is PLC , Technical Definition of a PLC 1.2 Advantage of PLC 1.3 Chronological Evolution of a PLC 1.4 Type of PLC 1.5 Block diagram PLC	09
02	PLC Hardware, Timers & Counters- 2.1 Relays 2.2 Ladder logic diagram 2.3 PLC Connection 2.4 Electrical Wiring diagram 2.5 JIC Wiring Symbols 2.6 Latches, Timer 2.7 Classification of Timer 2.8 PLC Counters 2.9 Operation of PLC Counter 2.10 Counter Parameters	18
03	Advance Instruction & Programming Techniques- a. Introduction b. Comparison Instruction c. Discussions on Comparison Instruction i. "EQUAL" ii. "NOTEQUAL" iii. "LESS THEN" iv. "LESS THEN OR EQUAL"	18

Sr.no	Course content	Study of hours
	<ul style="list-style-type: none"> c. "GRATER THEN" d. "MASKED COMPARISION FOR EQUAL" e. "LIMIT TEST" d. Mathematical Instruction e. Logical Instruction Data handling Instruction 	
04	PLC Input-Output (I/O) Modules Power Supply Introduction Classification of Input Output Modules Input-Output System Sinking Sourcing Special Input Modules RTD Input Module Stepper Motor Control Module Thermocouple Input Module Power Supply Configuring Power Line conditioner Reliability, Safety and Redundancy Filter	18
05	PLC Applications- Distributed control system, (DCS) Industrial control systems, (ICS) Programmable automation controller, (PAC). Industrial safety systems SCADA	15
06	Industrial Automation & Selection of Programmable Logic Controllers- Introduction Utility of automation Example of some simple Automated Systems Selection of PLC	12



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **612**

NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLERS

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Practical: **2 Hrs.** per week

LIST OF EXPERIMENTS

S.No.	Name of Experiment	Hours of Study
1	Develop a Simple Ladder Logic Program that will turn on an output X if input A and B or C is on	30
2	Develop a relay based Controller that will allow three switches in a room to control a single light	
3	How temperature control system can be developed in a process industry	
4	Develop a traffic control System	
5	Speed control of Induction Motor	



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 612

NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLERS

SCHEME: Jul.08

COMMON WITH PROGRAM (S): 001

REFERENCES

1. PLC Programming Method and Application :-
-John R Hackworth
- Fredric D Hackworth
(publication:- Pearson Education)
2. Process Dynamic and control
-D.E.seborg
-T.F.Edgar
-D.A.Melichamp
(publication:-Wiley publication)
3. Programmable Controllers operation and Application
(publication :-PHI publication)
4. Programmable Logic Controllers and Industrial Automation an Introduction
By:- Madhuchanda Mitra and Samarjit Sen Gupta
(publication:-Penram International Publishing (India) Pvt.Ltd.
5. Programmable Logic Controllers
By:-W. Bolten
Programmable Logic Controllers and Industrial Automation
By:- Kelvin Collins
(publication:-Exposure Publishing)
6. Programmable Logic Controllers
By:-Collin Simpson
7. Programmable Logic Controllers
By:-Morriss Brian publication :-PHI



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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**

COURSE CODE: **603**

NAME OF COURSE: **PROJECT**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **001**

Practical: **12 Hrs.** per week

RATIONALE

Project work is the area in which a student can show his creativity resources fullness, knowledge and various skills attained through the labs and work-shop during the course duration.

Project work leads the student to develop his original thinking, group discussion, leadership, interpersonal relations, inter disciplinary relation and polishes his behavior in the society.

He is also exposed to market survey for procurement of components, suiting to the circuit, their equivalents, the process of try outs of circuits, modification of circuit values and finally getting the desired result.

An electronics diploma student has very vast scope of preparing project, as electronics has entered in every walk of life of the society and every hour of one's daily life.

The support of the institution, faculty members, and supporting staff is of paramount importance and their quality is also reflected in the quality of the final shape of the project.

A good project work earns credit for all concerned and increase scope of employment / self employment when presented to potential employer. With this view curriculum can not be bound in any limits and boundary on papers. Reasonable freedom has to be given for selecting the project work as far as the project is feasible and economically viable and socially useful.

The objective of the course 'Project' is

- To provide students with a comprehensive experience for applying the knowledge gained so far by studying various courses.
- To develop an inquiring aptitude and build confidence among students by working on solutions of small industrial problems.
- To students an opportunity to do some thing creative and to assimilate real life work situation in institution.
- To adapt students for latest developments and to handle independently new situations.
- To develop good experiences power and presentation abilities in students

Students already have a glimpse of project work as they have worked on Minor Project Work in V semester. This gives the students an occasion to observe the work on real life projects and select some application area in which he/she will be undertaking project. External guide from industry can also be selected for project work along with an internal guide to prepare innovative and real projects. Students also have the flexibility of extending the minor project work into Major project, if the area has a scope for that. The purpose of providing six hours per week is to orient the student's in-groups on the following objectives:

- Provide general guidelines regarding execution of work.
- Impart instructions regarding write-up work and preparation of project documents.
- Sharing and solving common problems associated with execution of project work.
- Monitor and evaluate the progress of project work.

The faculty and student should work according to following schedule:

1. Each student undertakes substantial and individual project in an approved area of the subject and supervised by member of staff.
2. The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.
3. The project development must be carried out according to following steps and final write-up should have the same sequence.
 - Project objectives.
 - Requirement gathering.
 - Modeling of project should be done in any well- known modeling tools.
 - Analysis of Project.
 - Design of Project.
 - Implementation of project.
 - Testing on project.
 - Quality consideration of project.
 - Designing a small user manual.
 - Estimating the cost of the project.
 - Future scope and suggestions.



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**
COURSE CODE: **603**
NAME OF COURSE: **PROJECT**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S): **001**

ACTION PLAN FOR PROJECT WORK AND EVALUATION SCHEME # (SUGGESTIVE):

TASK/PROCESS	WEEK	EVALUTION
• Orientation of students by HOD/Project supervisor	1 st	-
• Literature survey and resource collection	2 nd	-
• Selection and finalization of topic before a committee*	3 rd	-
• Detailing and preparation of project (Modeling, Analysis and Design of Project work)	4 th to 6 th	Seminar-I
• Development Stage	7 th to 11 th	-
• Testing, improvements, quality control of project	12 th	-
• Acceptance testing	13 th	-
• Report writing	14 th	-
• Presentation before a committee (including user manual)	15 th	Seminar-II

* Committee comprises of HOD, all project supervisors including external guide from industry (if any).

the above marking scheme is suggestive, it can be changed to alternative scheme depending on the type of project, but the alternative scheme should be prepared in advance while finalizing the topic of project before a committee and explained to the concerned student as well.



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: SIXTH

COURSE CODE: 603

NAME OF COURSE: PROJECT

SCHEME: Jul.08

COMMON WITH PROGRAM (S): 001

REFERENCES / SOURCES FOR GUIDANCE TO STUDENT FOR SELECTION OF PROJECT WORK:

1. Electronics Magazines & Journals.
2. District Industries Center.
3. Industry-Institution Interaction (III)
4. Small Scale industry
5. Industrial problems discussed during industry visit/training.
6. Entrepreneurship development Board Magazine.
7. "Prime Minister Rojgar Yojana" projects from district Collectorate.



RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **SIXTH**
COURSE CODE: **604**
NAME OF COURSE: **PROFESSIONAL ACTIVITIES**

SCHEME: **Jul.08**
COMMON WITH PROGRAM (S):

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/eminent 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.

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.
- 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.