

**CURRICULUM**  
**FOR**  
**DIPLOMA IN ELECTRONICS AND**  
**TELECOMMUNICATION ENGINEERING**

**(FOURTH SEMESTER)**

**Scheme: Jul.08**

**Implemented from session: 2009-10**

**Under semester system**



**FEBRUARY 2009**

**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: FOURTH**

**COURSE CODE: 401**

**NAME OF COURSE: LINEAR INTEGRATED  
CIRCUITS**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S): E03, 001**

**PAPER CODE: 6205**

## **RATIONALE**

This course deals with the analog components and ICs used Electronic Industry. The functional behavior and typical circuits using analog devices are greatly emphasized. This course begins with the concept of feedback and its effect on amplifiers. Differential amplifiers are then treated, with the main portion of the course spent on the study of Op- Amps and their applications in the field of electronics and telecommunications.

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

- describe an operational amplifier
- explain how its operation in a circuit depends on certain parameters
- recognize various Op-Amp circuits and applications
- observe, measure and record various types of waveforms through the use of applicable measuring instruments
- work with appropriate attitudes and a willingness to follow instructions
- have a sense of the importance of responsibility and creativity in a changing technology
- develop understanding of all typical circuits using analog devices/ICs



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SEMESTER: **FOURTH**

COURSE CODE: **401**

NAME OF COURSE: **LINEAR INTEGRATED  
CIRCUITS**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6205

Lectures: **4 Hrs.** per week

Practical: **4 Hrs.** per week

### SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL ( HRS.)	TOTAL (HRS)
1.	INTRODUCTION TO OPERATIONAL AMPLIFIER	10	10	20
2.	LINEAR APPLICATION	15	15	30
3.	NONLINEAR APPLICATIONS	15	15	30
4.	VOLTAGE REGULATORS	10	10	20
5.	TIMERS	05	05	10
6.	PHASE LOCK LOOP (PLL)	05	05	10
	TOTAL	60	60	120



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SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6205

Lectures: **4** Hrs. per week

### CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	<b>Introduction to Operational Amplifier</b> <ul style="list-style-type: none"><li>- Differential amplifier:<ul style="list-style-type: none"><li>- Principle</li><li>- differential and common mode of operation</li><li>- concept of inverting and non- inverting input</li></ul></li><li>- The Op-Amp:<ul style="list-style-type: none"><li>- Block Diagram</li><li>- IC Packages</li></ul></li><li>- Ideal characteristics</li><li>- Electrical parameters:<ul style="list-style-type: none"><li>- Input offset voltage</li><li>- Input resistance</li><li>- CMRR</li><li>- Slew rate</li><li>- Gain</li><li>- Bandwidth</li></ul></li><li>- 741 OP- Amp characteristics, pin out and power supply requirements</li><li>- Interpreting and comparison of data (as per data sheet) of 741, op07, 351, 311, TL082, LM 324</li></ul>	10
02.	<b>Linear Application</b> <ul style="list-style-type: none"><li>- Inverting amplifier</li><li>- non-inverting amplifier</li><li>- Voltage follower</li><li>- Adder and Subtractor</li><li>- Differentiator</li><li>- integrator</li><li>- Scaling Amplifier</li><li>- AC and DC Amplifier</li><li>- Instrumentation amplifier</li></ul>	15

S.No.	Course Contents	Hrs of Study
	<ul style="list-style-type: none"> <li>- Active filters: low pass, high pass and band pass</li> <li>- Voltage to Current converter</li> <li>- Current to Voltage converter</li> </ul>	
03.	<p><b>Nonlinear applications</b></p> <ul style="list-style-type: none"> <li>- Comparators: <ul style="list-style-type: none"> <li>- functions of a comparator</li> <li>- modes of operation of comparator</li> <li>- Open loop- zero crossing detector</li> </ul> </li> <li>- Schmitt trigger <ul style="list-style-type: none"> <li>- Threshold levels</li> <li>- Inverting and non-inverting</li> <li>- Hysteresis curve</li> </ul> </li> <li>- Converters: <ul style="list-style-type: none"> <li>- Voltage to Frequency Conversion</li> <li>- Frequency to Voltage Conversion</li> </ul> </li> <li>- Sample / Hold circuit</li> <li>- Precision Rectifier</li> <li>- Oscillators: <ul style="list-style-type: none"> <li>- Wein Bridge Oscillator</li> <li>- Phase shift Oscillator</li> <li>- Relaxation Oscillator</li> </ul> </li> <li>- Logarithmic amplifier and antilogarithmic amplifier</li> <li>- Basics of analog multiplier and dividers</li> </ul>	15
04.	<p><b>Voltage Regulators</b></p> <ul style="list-style-type: none"> <li>- Need of Regulators</li> <li>- Series Regulator</li> <li>- Shunt Regulator</li> <li>- Pass Transistor Regulator</li> <li>- Switching Regulator</li> <li>- Basics of Regulator ICs like 723, LM317, 78XX , 79XX and SMPS TEA1507, TEA152X series</li> </ul>	10
05.	<p><b>Timers</b></p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- functional block diagram of a timer</li> <li>- 555 timer: <ul style="list-style-type: none"> <li>- operation modes of 555: mono and astable</li> <li>- Pin configuration of 555</li> <li>- 555 as wave generators: square wave, Saw tooth wave and Tri-angular Wave</li> </ul> </li> </ul>	05

S.No.	Course Contents	Hrs of Study
06.	<b>Phase Lock Loop (PLL)</b> <ul style="list-style-type: none"><li>- functional block diagram</li><li>- Lock &amp; Capture range</li><li>- transfer characteristics</li><li>- Basic Applications of PLL 567, PLL 565</li><li>- Applications of PLL</li></ul>	05



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NAME OF COURSE: **LINEAR INTEGRATED  
CIRCUITS**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE:

Practical: **4 Hrs.** per week

### LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
1.	Measurement of Different characteristics of an Op-Amp in open loop configuration. 1.Output Resistance 2.Different Input Resistance	<b>60</b>
2.	Measurement of Differential characteristics of an Op-Amp in open loop configuration. 1.Voltage Gain 2.Unity Gain Bandwidth	
3.	Inverting Amplifier : 1.AC analysis 2.DC analysis 3.Unity Gain Buffer	
4.	Non –Inverting Amplifier: 1.AC analysis 2.DC analysis 3.Unity Gain Buffer	
5.	Op-Amp as: 1.Adder 2.Subtractor 3.Multiplier 4.divider	
6.	Op-Amp as : Integrator Differentiator Inverter Buffer	
7.	Op-Amp as active Filter : Low pass filter	

	<p>High pass filter Band pass filter</p> <p>8. Signal Generator using Op-Amp and Timer IC  (a) Triangular wave generator  (b) Schmitt Trigger</p> <p>9. Signal generator using Op-Amp and Timer IC  (a) Saw tooth wave generator  (b) Ramp generation</p> <p>10. Oscillator using Op-Amp  (a) Wein Bridge Oscillator  (b) R.C.Phase Shift Oscillator</p> <p>11. Sample &amp; hold circuit operation</p> <p>12. Precision Rectifier using an Op-Amp and Voltage regulations.</p> <p>13. Phase lock loop as frequency multiplier.</p> <p>14. 4 bit D/A converter addition experiments.</p> <p>15. <b>A/D Converter</b></p>	
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### **LIST OF EQUIPMENT**

1. Linear IC Trainer
2. PLC Trainer
3. SMPS Trainer
4. Digital/Analog Multimeter
5. Function Generator/ Pulse Generator
6. Dual Power Supply
7. Cathode Ray Oscilloscope (C.R.O.)
8. Bread Board



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**PAPER CODE:**

### **REFERENCES**

1. Operational Amplifiers and Linear Integrated Circuits by R.F. Coughlin-F.F Driscall (PHI).
2. Op-Amps and Linear Integrated Circuits by R.A. Gayakwad
3. Electronic Devices & Circuits by Robert Boylestad
4. Electronic Devices & Circuits by Allen Mottershead
5. Integrated Electronic by Millman Halkias
6. Art of Electronics by Horowitz Winfield Hill
7. Operational Amplifiers and Integrated Circuits by Denton Daily
8. WBLM on Electronics circuits and design by IIT, Delhi.



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**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 402**

**NAME OF COURSE: MICROPROCESSOR AND  
MICROCONTROLLER**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, O01**

**PAPER CODE: 6206**

## **RATIONALE**

Microprocessors and Microcontrollers by now have entered in much industrial automation and the number of their applications is increasing rapidly. The use of them is popular because of its reliability, cheaper in cost, less power consumption, and flexibility.

In recent years lot of work has been done on the advancement of microprocessor architecture, application and its communication. It is required to keep pace with these rapid changes. With the introduction to this subject, a new dimension is provided for analog/digital systems, control systems, designing and diagnostics.

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

- identify the main function and application of microprocessors and microcontroller;
- describe the basic organization of a computer;
- Write simple machine language programs and debug it if necessary;
- Examine the concepts and processes of data transfer between the processor and peripherals;
- Apply concepts for interfacing peripherals;
- Use microcontroller in industry atomization.



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## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **402**

NAME OF COURSE: **MICROPROCESSOR AND  
MICROCONTROLLER**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, 001**

PAPER CODE: 6206

Lectures: **4 Hrs.** per week

Practical: **4 Hrs.** per week

### SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS.)	TOTAL (HRS)
1.	INTRODUCTION TO MICROPROCESSOR	05	-	05
2.	8085 MICROPROCESSOR	15	15	30
3.	ASSEMBLY LANGUAGE PROGRAMMING	05	10	15
4.	PERIPHERALS AND OTHER MICROPROCESSORS	10	10	20
5.	MICROCONTROLLERS	15	15	30
6.	APPLICATONS OF MICROPROCESSORS AND MICROCONTROLLES	10	10	20
	TOTAL	60	60	120



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SCHEME: **Jul.08**

COURSE CODE: **402**

COMMON WITH PROGRAM (S):**E03, O01**

NAME OF COURSE: **MICROPROCESSOR AND  
MICROCONTROLLER**

PAPER CODE: 6206

Lectures: **4 Hrs.** per week

### CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	<b>Introduction to Microprocessor</b> <ul style="list-style-type: none"><li>– How does microprocessor works</li><li>– Microprocessor architecture &amp; its operation</li><li>– Introduction to Intel family of microprocessor</li><li>– Description of interfacing with address latches</li><li>– Memory Mapped I/O &amp; I/O mapped I/O</li></ul>	05
02.	<b>8085 Microprocessor</b> <ul style="list-style-type: none"><li>– 8085 Architecture</li><li>– Pin assignments</li><li>– Block Diagram and its detail description</li><li>– Machine cycle &amp; BUS Timing</li><li>– Memory Interfacing</li><li>– Address and data BUS descriptions</li><li>– Interrupts and its types</li><li>– 8085 Instructions Set<ul style="list-style-type: none"><li>– Data Transfer operation</li><li>– Arithmetic Operation</li><li>– Logic operation</li><li>– Branch Operation</li><li>– Stack, Subroutine and related instruction</li></ul></li></ul>	15
03.	<b>Assembly Language Programming</b> <ul style="list-style-type: none"><li>– How to write, assemble and execute a simple program</li><li>– 8085 Programming Model</li><li>– Instruction format</li><li>– Assembler directives</li></ul> Addressing modes of 8085	05

S.No.	Course Contents	Hrs of Study
04.	<p><b>Peripherals and Other Microprocessors</b></p> <ul style="list-style-type: none"> <li>- Peripherals: <ul style="list-style-type: none"> <li>- 8255 programmable peripheral interface</li> <li>- 8279 programmable key board interface</li> <li>- 8254/8253 programmable interval timer</li> <li>- 8259 programmable interrupt controllers</li> <li>- 8257 DMA controller</li> </ul> </li> <li>- Other Microprocessors: <ul style="list-style-type: none"> <li>Block diagram, addressing modes, Registers, Flags, data and address</li> <li>bus structure of: <ul style="list-style-type: none"> <li>- Z-80</li> <li>- MC 6800</li> <li>- 8088/8086</li> </ul> </li> </ul> </li> </ul>	10
05.	<p><b>Microcontroller</b></p> <ul style="list-style-type: none"> <li>- 8031/8051/89c51 Architecture</li> <li>- I/O port their structure</li> <li>- Addressing modes</li> <li>- SFRs and RAM</li> <li>- Use of all SFRs</li> <li>- Bit addressable locations</li> <li>- Memory organization</li> <li>- Internal memory, external memory</li> <li>- Introductions to other microcontrollers like 89c52,89c2051and 89c535</li> <li>- Interfacing of Microcontroller with: <ul style="list-style-type: none"> <li>- 7-sgment display</li> <li>- LCD display</li> <li>- Key pad</li> <li>- A/D and D/A Converters</li> </ul> </li> </ul>	15
06.	<p><b>Applications of Microprocessors and Microcontrollers</b></p> <p>Block diagram, flow diagram and their interfacing of the followings:</p> <ul style="list-style-type: none"> <li>- Temperature control and monitoring system</li> <li>- Speed control of DC motor</li> <li>- Traffic Signal control system</li> <li>- Elevator control system</li> <li>- Basics of Embedded system</li> <li>- Data Acquisition System</li> </ul>	10



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NAME OF COURSE: **MICROPROCESSOR AND  
MICROCONTROLLER**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE:

Practical: **4 Hrs.** per week

### LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
1.	Study of Assembler, Compiler, cross compiler, emulator, simulator	<b>60</b>
2.	Write a program in 8085 Assembly language for addition of two 8 bit numbers.	
3.	Write a program in 8085 Assembly language for subtraction of two 8 bit numbers.	
4.	Write a program in 8085 Assembly language for multiplication of two 8 bit numbers.	
5.	Write a program in 8085 Assembly language for division of two 8 bit numbers.	
6.	Write a program to perform AND, OR, Ex-OR logic operation in 8085.	
7.	Write a program which can move data from one memory location to another.	
8.	Write a program to exchange two numbers.	
9.	Write a program in 8051 (microcontroller) assembly language programming for addition of two 8 bit numbers.	
10.	Write a program in 8051 assembly language programming for subtraction of two 8 bit numbers	
11.	Write a program in 8051 assembly language programming for multiplication of two 8 bit numbers	
12.	Write a program in 8051 assembly language programming for division of two 8 bit numbers	
13.	<b>Embedded system development kit for designing using keilvision software.</b>	



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**SCHEME: Jul.08**

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### **LIST OF EQUIPMENT**

1. 8085 Microprocessor Training Kit
2. Interfacing Card for Microprocessor Kit
3. 8051 Microcontroller Training Kit
4. Embedded Training Kit
5. Microcontroller Development Board with Programmer
6. Universal Embedded Trainer
7. Input Interface Module
8. Motor Drive Module
9. ADC/DAC Module
10. Computer Interface Module
11. Digital Multimeter
12. Function Generator/ Pulse Generator
13. Dual Power Supply
14. Cathode Ray Oscilloscope (C.R.O.)
15. Bread Board
16. Frequency Counter
17. Display Module



18.



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**COURSE CODE: 402**

**COMMON WITH PROGRAM (S):E03, 001**

**NAME OF COURSE: MICROPROCESSOR AND  
MICROCONTROLLER**

**PAPER CODE:**

### **REFERENCES**

1. Microprocessor architecture programming and application with 8085/8080A by Ramesh S. Gaonkar
2. Introduction to Microprocessor by Aditya P. Mathur
3. Microprocessor & Interfacing Dougus V. Hall
4. Microprocessors & Fundamentals by B. Ram
5. 8051 Microcontroller by Kenneth Ayala
6. 8051 Microcontroller and assembly language programming by Mazidi
7. Solid state circuit design with Microcontrollers by C.K. Dwivedi (Das Publisher)



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**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 403**

**NAME OF COURSE: ELECTRONIC  
MEASUREMENTS**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, O01**

**PAPER CODE: 6207**

## **RATIONALE**

Measurements in all branches of Engineering are the prerequisite for proper perception as well as interpretation. A technician is called upon to make various measurements, connect and install various measuring instruments. The student making electronics measurements is also called upon to make electrical measurements.

In view of this the contents of the subject commences with the fundamental concept of measurements and after that the contents dealt with measuring instrument; principle action their technical features and applications.

The pre knowledge imparted to student kept in to consideration & the approach of presentation tries to satisfy the need of second year diploma students. Except some basic knowledge in electrical, fundamental of electronics & experimental physics no other reference are needed.

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

- Describe electronic equipments such as laboratory instruments used
- Carry out performance testing of electronic equipments
- Understand the requirement of measuring standards
- Understand clearly the principle of operation of Oscilloscopes
- Understand the concept of automated test and measurement



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SEMESTER: **FOURTH**

COURSE CODE: **403**

NAME OF COURSE: **ELECTRONIC  
MEASUREMENTS**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6207

Lectures: **4** Hrs. per week

Practical: **2** Hrs. per week

### SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS.)	TOTAL (HRS)
1.	MEASURING SYSTEMS	15	06	21
2.	BASICS PRINCIPLES OF MEASUREMENT	15	06	21
3.	RANGE EXTENSION METHODS	05	06	11
4.	CATHOD RAY OSCILLOSCOPE	10	06	16
5.	TRANSDUCERS	15	06	21
	TOTAL	60	30	90



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NAME OF COURSE: **ELECTRONIC  
MEASUREMENTS**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6207

Lectures: **4** Hrs. per week

### CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	<b>Measuring System</b> 1.1 Basic elements of measuring devices Sensing Element suitability, Signal Conditioning Element, Output Element 1.2 Basic Parameters of Measuring devices Accuracy, Precision, Error(Gross, Systematic & Random), Linearity, Hysteresis, Resolution, Threshold, Repeatability, Reliability or Maintainability, Span (Range), Calibration 1.3 Standard & Units of Measurement Primary Standard, Secondary Standard, International Standard, Working Standard, Electrical Standard: Current Standard, Resistance Standard, Capacitance Standard, Inductance Standard, Voltage Standard, IEEE Standard 1.4 Basic Measuring Instrument: (Construction, working, application) - PMMC Instrument - Moving iron instrument - Multimeter- Analog, Digital (Block Diagram)	15
02.	<b>Basics principles of Measurement</b> 2.1 Introduction 2.2 Resistance Measurement - Low Resistance Method: Potentiometer method, Kelvin's double bridge - Medium Resistance Measurement: Wheatstone Bridge, Ammeter, Voltmeter method, substitution method. -High Resistance Measurement: Loss of charge method, Meggar method. 2.3 Inductance Measurement : (i) Approximation Method: V-I method, 2 ammeter method, 3 ammeter method, 3 voltmeter method.	15

S.No.	Course Contents	Hrs of Study
	(ii) Alternating Current Bridge Method : Maxwell's Btidge, Anderson's bridge, Hay's Bridge (iii) Mutual Inductance Measurement : Fellies Method 2.4 Capacitance Measurement: De Sauty's Bridge, Schering Bridge	
03.	<b>Range Extension Methods</b> 3.1 Needs of range extension 3.2 Range Extension of Ammeter  3.3 Range Extension of Voltmeter 3.4 Need of Instrument Transformer 3.5 Advantages of Instrument Transformer 3.6 Current Transformer & Potential	05
04.	<b>Cathode Ray Oscilloscope</b> 4.1 Introduction to C.R.O 4.2 Construction, Block Diagram of a general Purpose C.R.O. 4.3 Cathode Ray Tube (C.R.T.) 4.4 Time Base Generator 4.5 Applications of C.R.O., Use of C.R.O. to Measure: Voltage, Current, Frequency, Phase Difference, Lissajou's Pattern 4.6 Special Purpose C.R.O.: Dual Beam Oscilloscope, Dual Trace Oscilloscope, Digital Storage Oscilloscope.	10
05.	<b>Transducers</b> 5.1 Introduction and Classification of Transducers 5.2 Selecting a Transducer 5.3 Sensors: diaphragm bionet pattern, allic' strip, bourden tube, bellows, LVDT, variable capacitance 5.4 Level measurement: Capacitance sensors, Ultrasonic transducers 5.5 Pressure Measurement : Potentiometric pressure transducer, Strain gauge, piezoelectric load cell 5.6 Temperature Measurement: Resistance Transducers, Thermocouple, Thermistor, Photoconductive Cells, Photo Voltaic Cell, Optical Pyrometer.	15



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SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE:

Practical: **2 Hrs.** per week

### LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
1.	Self Inductance measurement by Ammeter and voltmeter method.	<b>30</b>
2.	Self Inductance measurement by 3 voltmeter method.	
3.	Self Inductance measurement by 3 Ammeter method.	
4.	Self Inductance measurement by general 4 arm bridge network method.	
5.	Self Inductance measurement by (a) Maxwell Bridge method (b) Hays Bridge Method (c) Anderson Bridge Method.	
6.	Mutual Inductance measurement by Felicis Method.	
7.	Capacitance measurement by Wein Bridge Method.	
8.	Capacitance measurement by Schering Bridge Method.	
9.	Low Resistance Measurement by – (a) Ammeter Voltmeter Method (b) Potentiometer method (c) Kelvin Double Bridge Method	
10.	Medium Resistance measurement by – a) Substitution method (b) Wheat Stone Bridge Method.	
11.	High Resistance Measurement by – (a) Ohm meter (b) Meggar	
12.	Ammeter range extension using shunts.	
13.	Voltmeter range extension using voltage multiplier circuit.	
14.	Study of C.R.O.	
15.	Measurement on CRO 1. Voltage measurement on C.R.O. 2.Current measurement on C.R.O. 3.Frequency measurement on C.R.O. 4.Phase Difference measurement on C.R.O.	
16.	<b>Study of various transducers available in the laboratory.</b>	



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MEASUREMENTS**

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**COMMON WITH PROGRAM (S):E03, O01**

**PAPER CODE:**

### **LIST OF EQUIPMENT**

1. Discrete Component Trainer
2. Digital/ Analog Multimeter
3. Ammeter
4. Voltmeter
5. Function Generator/ Pulse Generator
6. Dual Power Supply
7. Cathode Ray Oscilloscope (C.R.O.)
8. LCR Q (Bridge Type) Meter
9. Optical Transducer Trainer
10. Temperature Transducer Trainer
11. LVDT Trainer
12. Strain Gauge Trainer
13. Relay Control Trainer
14. Ohm meter
15. Meggar
16. Decade Capacitor Box
17. Decade Inductor Box
18. Decade Resistance Box
19. Anderson Bridge
20. Schering Bridge
21. Kelvin Bridge
22. Maxwell Inductance Bridge
23. Wein's Bridge
24. Wheatstone Bridge
25. Desauty Bridge
26. Hay's Bridge



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 403**

**NAME OF COURSE: ELECTRONIC  
MEASUREMENTS**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, 001**

**PAPER CODE:**

## **REFERENCES**

- 1 Electronic Instrumentation and measurement techniques by Cooper
- 2 Instrumentation Devices & Systems by Rangan
- 3 Electrical Measurements & Measuring instruments by Golding & Widdis
- 4 A course in Electrical & electronic measurement & instrumentation by A.K. sawhney.





**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 404**

**NAME OF COURSE: COMMUNICATION  
ENGINEERING**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S): E03, O01**

**PAPER CODE: 6208**

## **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, attenuation, bandwidth 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 telephony



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **404**

NAME OF COURSE: **COMMUNICATION  
ENGINEERING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6208

Lectures: **4** 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	15	30
3.	MULTIPLEXING TECHNIQUES	05	05	10
4.	FUNDAMENTALS OF WIRE TELEPHONE	15	05	20
5.	FUNDAMENTALS OF ELECTRONIC EXCHANGE	15	--	15
6.	FACSIMILE COMMUNICATION (FAX)	05	05	10
	TOTAL	60	30	90



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **404**

NAME OF COURSE: **COMMUNICATION  
ENGINEERING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: 6208

Lectures: **4** Hrs. per week

### CONTENT DETAILS

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

S.No.	Course Contents	Hrs of Study
	<ul style="list-style-type: none"> <li>- Pulse Code Modulation (PCM): sampling, Quantization and encoding, data rate for digital voice channel</li> <li>- Digital Modulation techniques: Graphically explanations of NRZ, RZ, Manchester, binary ASK, FSK, PSK, Quadrature Modulation</li> </ul>	
03.	<p><b>Multiplexing Techniques</b></p> <ul style="list-style-type: none"> <li>- Need of multiplexing</li> <li>- frequency division multiplexing(FDM)</li> <li>- time division multiplexing (TDM)</li> <li>- comparison between FDM and TDM</li> <li>- Digital hierarchy in India</li> </ul>	05
04.	<p><b>Fundamentals of wire telephone</b></p> <ul style="list-style-type: none"> <li>- Frequency range used for technology.</li> <li>- Voice/Audio signal parameters: Sound pressure level, Sound intensity, loudness, loudness level, pitch &amp; frequency, sound distortion.</li> <li>- Electronic Telephone Instrument</li> <li>- Subscriber's loop</li> <li>- DTMF dialing</li> <li>- Signaling tones</li> <li>- Telephone Lines</li> <li>- Telephone switching techniques: Electro-mechanical switching, analog switching, digital switching techniques, Digital Time Switch, Digital Space Switch, single stage, two stage, three stage, space switch</li> <li>- Telephone traffic calculation</li> </ul>	15
05.	<p><b>Fundamentals of electronic exchange:</b></p> <ul style="list-style-type: none"> <li>- An overview of manual exchange</li> <li>- Introduction of electronic exchange.</li> <li>- Chronological development of electronic exchanges</li> <li>- Basic principles of SPC exchange</li> <li>- Block diagram of SPC exchange</li> <li>- Working of SPC exchange: Terminal equipment, switching processor, switching peripheral, signaling interfaces, data processing peripheral.</li> <li>- Telephone signaling: Telephone signals, addressing modes, call connection, subscriber's line signaling, calling subscriber's line signals, called subscriber's line signals.</li> <li>- PBX/PABX/EPABX</li> </ul>	15

S.No.	Course Contents	Hrs of Study
06.	<b>Facsimile Communication</b> <ul style="list-style-type: none"><li>- Introduction</li><li>- Types</li><li>- Facilities of fax machine: General, copying, pooling, report status etc</li><li>- advance, memory, time program</li><li>- Setting fax to receive document and telephone automatically, changing the enquiry, self diagnosis features</li><li>- Precautions during FAX operation and troubleshoot.</li></ul>	05



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **404**

NAME OF COURSE: **COMMUNICATION  
ENGINEERING**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S): **E03, O01**

PAPER CODE:

Practical: **2 Hrs.** per week

### LIST OF EXPERIMENTS

S.No.	Name of Experiment	HRS OF PRACTICAL
	A. Perform various experiments on Communication Trainers such as: <ol style="list-style-type: none"><li>1. Study of Amplitude Modulation</li><li>2. Study of Frequency Modulation</li><li>3. Determine the percentage of modulation</li><li>4. PAM, PWM, PPM Circuits for Modulation and Demodulation</li><li>5. Study of ASK, FSK, PSK, QAM Signals.</li><li>6. Study of PCM - Pulse Code Modulation</li><li>7. Study of FDM and TDM</li><li>8. Study of operation of fax machine and its control.</li><li>9. Study various components of handset telephone instrument.</li></ol>	<b>30</b>
	<b>B. Visit to a Electronic telephone exchange in reference to understand its operation, various controls, switching techniques etc.</b>	



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**SEMESTER: FOURTH**

**COURSE CODE: 404**

**NAME OF COURSE: COMMUNICATION  
ENGINEERING**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, 001**

**PAPER CODE:**

### **LIST OF EQUIPMENT**

1. Analog Communication Trainer
2. AM Transmitter/ Receiver Trainer
3. Frequency Modulation/ Demodulation Trainer
4. FM Communication Trainer
5. TDM Trainer
6. FDM Trainer
7. PAM/PWM/ PPM Trainer
8. QAM Trainer
9. Sampling and Reconstruction Trainer
10. PCM Transmitter/ Receiver Trainer
11. Delta Modulation Trainer
12. Digital/ Analog Multimeter
13. Function Generator/ Pulse Generator
14. Dual Power Supply
15. Cathode Ray Oscilloscope (C.R.O.)
16. Digital Oscilloscope
17. DTMF Telephone Trainer Kit
18. EPABX Trainer
19. Transmission Line Trainer
20. Data Conditioning and Carrier Modulation System
21. Fax Machine Demonstrator Board
22. Synthesized Signal Generator
23. Distortion Meter



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**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

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**NAME OF COURSE: COMMUNICATION  
ENGINEERING**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S): E03, 001**

**PAPER CODE:**

## **REFERENCES**

1. Electronic Communication systems by Dennis Roddy & John coolen
2. Electronics communication systems by Kennedy
3. Telephony by Das & Biswas.
4. Introduction to Telephony & telegraphy by E.H. Jolly(wheeler)
5. Electronic Communication System by Willium Schwber
6. Electronic Communication System by Wayne Tomasi
7. Telecommunication switching systems and Networks by Vishwanathan





**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 412**

**NAME OF COURSE: MARKETING  
MANAGEMENT**

**SCHEME: Jul.08**

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

**PAPER CODE: 5181**

### **RATIONALE**

In the Era of Globalization and Liberalization, this course of Marketing Management is of utmost important to the entrepreneur, industrialist and people working in the field of Marketing and related work.

This course specially designed to help the students in widening their knowledge and understanding of the current market trends and also helpful to start their career in their respective fields along with the knowledge of marketing.

To produce something is not very difficult but to make people come forward to buy it is very difficult task. This statement shows the importance and need of this course in the present scenario.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **412**

NAME OF COURSE: **MARKETING  
MANAGEMENT**

SCHEME: **Jul.08**

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

PAPER CODE: **5181**

Lectures: **6** Hrs. per week

### SCHEME OF STUDIES

S.No.	TOPIC	THEORY HRS.	PRACTICAL HRS.	TOTAL HRS.
1	MARKETING AND CONCE PT	7	-	7
2	MARKETING ENVIRONMENT	4	-	4
3	MARKETIN PLANNING AND ORGANISATION	8	-	8
4	MARKET SEGMENTATION	8	-	8
5	MARKETING MIX	4	-	4
A	PRODUCT MANAGEMENT	11	-	11
B	PLACE MANAGEMENT	9	-	9
C	PRICE MANAGEMENT	8	-	8
D	PROMOTION MANAGEMENT	9	-	9
6	UNDERSTANDING CONSUMERS	7	-	7
7	MARKETING RESEARCH AND SALES FORECASTING	11	-	11
8	SALES MANAGEMENT	4	-	4
	<b>TOTAL</b>	<b>90</b>	<b>-</b>	<b>90</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **412**

NAME OF COURSE: **MARKETING  
MANAGEMENT**

SCHEME: **Jul.08**

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

PAPER CODE: **5181**

Lectures: **6** Hrs. per week

### CONTENT DETAILS

S. NO.	DETAILED COURSE CONTENT	Hrs of Study
1.	<b>Marketing and Concept</b> <ul style="list-style-type: none"><li>- Evolution of marketing-a historical background</li><li>- The stage of barter</li><li>- The stage of money economy</li><li>- The stage of industrial revolution</li><li>- The stage of competition</li><li>- The emergence of marketing</li><li>- Selected definitions of marketing</li><li>- Different concept of marketing</li><li>- The exchange concept</li><li>- The production concept</li><li>- The product concept</li><li>- The sales concept</li><li>- The marketing concept</li><li>- Difference between selling &amp; marketing</li><li>- Benefits &amp; significance of marketing</li><li>- Helps to remove causes for under development</li><li>- Improve productivity &amp; efficiency</li><li>- Canalize country's economic resources properly</li><li>- Insure better deal for consumer</li><li>- Make economic planning meaningful &amp; relevant etc.</li></ul>	<b>07</b>

2.	<p><b>Marketing environment</b></p> <ul style="list-style-type: none"> <li>- Internal &amp; external factors</li> <li>- Demographic environment</li> <li>- Economic environment</li> <li>- Political environment</li> <li>- Physical environment</li> <li>- Technological environment</li> <li>- Competitive environment</li> <li>- Social &amp; cultural environment</li> <li>- Micro &amp; macro environment</li> </ul>	<b>04</b>
3.	<p><b>Marketing planning &amp; organization</b></p> <ul style="list-style-type: none"> <li>- Scope &amp; importance of planning</li> <li>- Steps in marketing planning process</li> <li>- Purpose &amp; principle of organization</li> <li>- Models of marketing organization</li> <li>- Line &amp; staff type</li> <li>- Product based organization</li> <li>- Territory oriented organization</li> <li>- Complex organization</li> <li>- Task of chief marketing executive</li> <li>- Decentralization</li> </ul>	<b>08</b>
4.	<p><b>Market segmentation</b></p> <ul style="list-style-type: none"> <li>- Types of market</li> <li>- Definitions &amp; benefits of segmentation</li> <li>- Methods of segmentation</li> <li>- Geographic segmentation</li> <li>- Demographic segmentation</li> <li>- Psychographic segmentation</li> <li>- Buyer behavior Segmentation</li> <li>- Volume segmentation</li> <li>- Steps in market segmentation</li> <li>- Market targeting</li> </ul>	<b>08</b>

5.	<p><b>Market mix</b></p> <ul style="list-style-type: none"> <li>- Definition of market mix</li> <li>- Elements of marketing mix (4 P'S)-Product, Place, Price, Promotion</li> <li>- Environmental variable (uncontrollable variables)</li> <li>- Customer variable</li> <li>- Competition variable</li> <li>- Trade variable</li> <li>- Environmental variable</li> <li>- Product management</li> <li>- Components of product <ul style="list-style-type: none"> <li>- The core or basic constituent</li> <li>- The associated features</li> <li>- The brand names, package,label</li> </ul> </li> <li>- Types of product <ul style="list-style-type: none"> <li>- The generic product</li> <li>- The branded product</li> <li>- The differentiated product</li> <li>- The customized product</li> <li>- The augmented &amp; potential product</li> </ul> </li> <li>- The product line &amp; product mix</li> <li>- New product development (NPD)</li> <li>- Significance &amp; classification of new product</li> <li>- Stages in NPD</li> <li>- Estimating the demand for new product</li> <li>- Test marketing</li> <li>- Product life cycle (PLC)</li> <li>- Concepts &amp; benefits of PLC</li> <li>- Different stages in PLC</li> <li>- Strategies used in different stages</li> <li>- Place management</li> <li>- Physical distribution <ul style="list-style-type: none"> <li>- Definitions &amp; importance of physical distribution</li> <li>- Designing the physical distribution system</li> </ul> </li> </ul>	41
	<ul style="list-style-type: none"> <li>- The distribution channel <ul style="list-style-type: none"> <li>- The role &amp; importance of distribution channel</li> <li>- Planning &amp; designing of distribution channel</li> <li>- Types of distribution intermediaries</li> </ul> </li> <li>- Price management</li> <li>- The meaning &amp; importance of pricing</li> <li>- Objectives of pricing</li> <li>- Factors affecting pricing –Internal &amp; external</li> <li>- Pricing methods <ul style="list-style-type: none"> <li>- Cost based pricing</li> </ul> </li> </ul>	

	<ul style="list-style-type: none"><li>- Break even pricing</li><li>- Demand based pricing</li><li>- Competition based pricing</li><li>- Product line pricing</li><li>- Tender pricing</li><li>- Affordability pricing</li><li>- Differentiated pricing</li><li>- Pricing policies &amp; setting the price</li><li>- Promotion management</li><li>- Sales promotion<ul style="list-style-type: none"><li>- Importance &amp; objectives of sales promotion</li><li>- Tools &amp; techniques of sales promotion</li></ul></li><li>- Advertising<ul style="list-style-type: none"><li>- Role &amp; importance of advertising</li><li>- Types of advertising</li><li>- Deciding on the advertising budget</li><li>- Evaluating advertising effectiveness</li></ul></li><li>- Difference between sales promotion &amp; advertising</li></ul>	
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6.	<p><b>Understanding consumer</b></p> <ul style="list-style-type: none"> <li>- Factor influencing buyer behavior <ul style="list-style-type: none"> <li>- Information from variety of sources</li> <li>- Socio-cultural environment of buyer</li> <li>- Group influence</li> <li>- Religion &amp; language</li> <li>- Concern about status</li> </ul> </li> <li>- Buying motives –Product &amp; patronage motive</li> <li>- Buying habits – Convenience, shopping and spatiality goods</li> </ul>	07
7.	<p><b>Marketing research &amp; sales forecasting</b></p> <ul style="list-style-type: none"> <li>- Definition &amp; importance of marketing research</li> <li>- Steps in marketing research <ul style="list-style-type: none"> <li>- Defining problem</li> <li>- Problem analysis</li> <li>- Developing research design</li> <li>- Developing research procedure</li> <li>- Data collection –Primary &amp; secondary</li> <li>- Analyzing &amp; interpretation</li> <li>- Summarizing &amp; preparing the research report</li> </ul> </li> <li>- Method of market research</li> <li>- Necessity &amp; purpose of sales forecasting</li> <li>- Methods of sales forecasting</li> </ul>	11
8.	<p><b>Sales management</b></p> <ul style="list-style-type: none"> <li>- Designing the sales force</li> <li>- Managing the sales force <ul style="list-style-type: none"> <li>- Recruitment &amp; selection</li> <li>- Training, compensation, control</li> <li>- Supervision &amp; direction</li> <li>- Motivation of salesman</li> </ul> </li> <li>- Fixing sales quota</li> <li>- Duties &amp; responsibilities of sales manager</li> </ul>	04



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE:412**

**NAME OF COURSE: MARKETING  
MANAGEMENT**

**SCHEME: Jul.08**

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

**PAPER CODE: 5181**

## **REFERENCES**

1. Marketing management - Analysis, Planning & Control - Philip Kotler
2. Principles & practice of Marketing in India - C.B.Memoria & R.L.Joshi
3. Contemporary Marketing – Louis & Boone & David L. Kurtz
4. Essential of Management –Koontz
5. Marketing management- S.A. Sherlekar





**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 411**

**NAME OF COURSE: ENTREPRENEURSHIP**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, O01**

**PAPER CODE: 6046**

## **RATIONALE**

Since long entrepreneurship has been recognized as an essential ingredient of economic development. Concept of entrepreneurship has varied from time to time to suit the changing ethos of socio-economic reality. It was applied to business for the first time in 18<sup>th</sup> century, to designate a dealer who buys and sells goods at uncertain prices. Later on an entrepreneur was considered a dynamic agent of change, or the catalyst who transformed increasingly physical, natural and human resources, into corresponding production possibilities. In recent years, managerial aspects of entrepreneurship are being emphasized. It employs innovativeness, an urge to take risk in the face of uncertainties, and intuition, i.e. a capacity of seeing things in a way which afterwards proves to be true.

The course is kept in soft core under DCS, DME and DEE/ Videography/ Arch/CDDM/ Garment/ MOM/ Prod/ RAC/ CTM/ Auto/ Comp/ ETE/ IT/ Opto/ Print/ Textile technology.

To bring to surface certain common characteristics such as perception of economic opportunity, technical and organizational skills, managerial competence, and motivation to achieve result.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **411**

NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: **6046**

Lectures: **6 Hrs.** per week

### SCHEME OF STUDIES

S.No.	TOPICS	THEORY HRS.	PRACTICAL HRS.	TOTAL HRS.
1.	INTRODUCTION TO ENTREPRENEURSHIP	11	-	11
2.	INDUSTRIES AND BUSINESS ORGANIZATION	11	-	11
3.	INSTITUTIONAL ASSISTANCE	11	-	11
4.	INCENTIVES/ CONCESSION/ FACILITIES AVAILABLE TO SSI ENTREPRENEUR	11	-	11
5.	PLANNING OF INDUSTRIAL UNIT	26	-	26
6.	ACHIVEMENT MOTIVATION	08	-	08
7.	FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI)	12	-	12
	TOTAL	90	-	90



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## DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SEMESTER: **FOURTH**

COURSE CODE: **411**

NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: **Jul.08**

COMMON WITH PROGRAM (S):**E03, O01**

PAPER CODE: **6046**

Lectures: **6 Hrs.** per week

### CONTENT DETAILS

S.No.	Course Contents	Hrs of Study
01.	<b>Introduction to Entrepreneurship</b> <ul style="list-style-type: none"><li>- Definition of Entrepreneur / Entrepreneur</li><li>- Difference between Entrepreneurship / Entrepreneurship</li><li>- Need for Entrepreneurship</li><li>- qualities of successful entrepreneur</li><li>- Myths about Entrepreneurship</li><li>- Classification of entrepreneurs on the basis of different criteria</li><li>- Reasons for the failure of entrepreneurs</li></ul>	11
02.	<b>Industries and Business Organization</b> <ul style="list-style-type: none"><li>- Concept of Industry or Enterprise</li><li>- Classification of Industries<ul style="list-style-type: none"><li>(a) On the basis of capital investment<ul style="list-style-type: none"><li>- Tiny (Micro) Industry</li><li>- Small Scale</li><li>- Medium Scale</li><li>- Large Scale</li></ul></li><li>(b) Others<ul style="list-style-type: none"><li>- Rural Industry</li><li>- Cottage Industry</li></ul></li><li>(c) Forms of Business Organization<ul style="list-style-type: none"><li>- Proprietorship</li><li>- Board &amp; Co-operative</li><li>- Partnership</li><li>- public Ltd.</li><li>- Private Ltd.</li><li>- IT. Sector</li><li>- Government Co-operative / Undertakings</li></ul></li></ul></li></ul>	11

S.No.	Course Contents	Hrs of Study
	(d) Tiny small scale Industry <ul style="list-style-type: none"> <li>- Definition</li> <li>- Its significance in National Development.</li> <li>- Govt. policies for SSI promotions</li> <li>- Sector / Product for SSI.</li> </ul>	
03.	<b>Institutional Assistance</b> <ul style="list-style-type: none"> <li>(a) Types of Institutional assistance               <ul style="list-style-type: none"> <li>- Infra - structural assistance</li> <li>- Technical Assistance</li> <li>- Financial assistance</li> <li>- Marketing Assistance</li> </ul> </li> <li>(b) Information / guidance &amp; Training               <ul style="list-style-type: none"> <li>- SISI</li> <li>- MPCON</li> <li>- CED- MA</li> <li>- ASK</li> <li>- CSIR</li> <li>- NRDC</li> </ul> </li> <li>(c) Infrastructure               <ul style="list-style-type: none"> <li>- D/C</li> <li>- AVN/AKVN</li> </ul> </li> <li>(e) Finance               <ul style="list-style-type: none"> <li>- SIDBI</li> <li>- NABARD</li> <li>- M.P.A.V.V.N.</li> <li>- KVIB</li> <li>- MPWDC</li> <li>- MPFC</li> <li>- NSIC</li> </ul> </li> <li>(d) Marketing               <ul style="list-style-type: none"> <li>- MP- AGRO</li> <li>- NSIC</li> <li>- PM.LUN</li> <li>- EXPORT COPPORATION</li> <li>- KVIP</li> <li>- MPHSVN</li> <li>- MPLDC</li> </ul> </li> <li>(e) Quality Control               <ul style="list-style-type: none"> <li>- BIS</li> <li>- FPO</li> <li>- AG. MKT. Boerd.</li> <li>- MPLUN</li> <li>- F.D.A.</li> </ul> </li> </ul>	11
04.	<b>Incentives / Concession/ Facilities Available</b> <ul style="list-style-type: none"> <li>- Seed money</li> <li>- Incentive / subsidies</li> <li>- Others ( Phones, Lands etc)</li> </ul>	11
05.	<b>Planning of Industrial Unit</b> <ul style="list-style-type: none"> <li>- Pre- Planning Stage               <ul style="list-style-type: none"> <li>- Scanning the environment</li> <li>- Market survey</li> <li>- Seeking information</li> <li>- product / project selection</li> </ul> </li> </ul>	26

S.No.	Course Contents	Hrs of Study
	<ul style="list-style-type: none"> <li>- Implementation Stage               <ul style="list-style-type: none"> <li>- PPR Preparation</li> <li>- DIC registration</li> <li>- Arrangement of Land</li> <li>- Arrangement of Power</li> <li>- Obtaining NOC / Licenses from various Deptt.</li> <li>- DPR Preparation</li> <li>- Seeking financial assistance</li> <li>- Commercial Production</li> </ul> </li> <li>- Post Implementation stage               <ul style="list-style-type: none"> <li>- Permanent registration from D.I.C.</li> <li>- Availing Subsidies</li> <li>- Diversification / Modification</li> <li>- Setting up of marketing channel / Distribution.</li> </ul> </li> </ul>	
06.	<p><b>Achievement Motivation</b></p> <ul style="list-style-type: none"> <li>- Historical perspective</li> <li>- Concept of achievement motivation</li> <li>- Significance of achievement motivation</li> <li>- Development of achievement motivation</li> </ul>	08
07.	<p><b>Financial Management of an Industrial Unit (SSI)</b></p> <ul style="list-style-type: none"> <li>- Tools of financial analysis</li> <li>- Ratio analysis</li> <li>- Fund Flow / Cash flow analysis</li> <li>- Working capital and Concepts</li> <li>- Financial accounting</li> </ul>	12
		<b>90</b>



# **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

## **DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SEMESTER: FOURTH**

**COURSE CODE: 411**

**NAME OF COURSE: ENTREPRENEURSHIP**

**SCHEME: Jul.08**

**COMMON WITH PROGRAM (S):E03, O01**

**PAPER CODE: 6046**

### **PROJECT WORK/ASSIGNMENT**

1. To prepare chart to showing various factors affecting entrepreneurship.
2. To collect details related to various schemes run by the Govt. for Self-Employment and Entrepreneurship.
3. To identify and select a project and conduct Market-Survey thereof.
4. To collect various formats used in industries & departments/institutions working in the field of entrepreneurship.
5. Visit few small scale industries situated in city, nearby industrial area.
6. Discuss the problems related to SSI (Small Scale Industries) with an entrepreneur.
7. Collect information about market rates quality and quantity of goods for their choice.
8. Develop logical and analytical approach to purchase the raw material / finished goods
9. To prepare case study of successful entrepreneurs.
10. Preparation of Project report for the industry/ Business they are willing to start.

### **REFERENCES**

1. Entrepreneurial Development Vol. I,II,III by Vasant Desai Himalaya Publication
2. CEDMAP (Center of Entrepreneurial development Madhya Pradesh)
3. Udyamita Vikas by Anand Prakashan



## RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SEMESTER: **FOURTH**  
COURSE CODE: **406**  
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 mark sheet 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.