STATE BOARD OF TECHNICAL EDUCATION, BIHAR
Scheme of Teaching and Examination for
III[rd] SEMESTER DIPLOMA IN ELECTRONICS ENGINEERING
(Effective form Session 2020-2021 Batch)

THEORY

S.No	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION SCHEME							Credits
			Periods per week	Hours of Exam	Teacher's Assessment (TA) Marks (A)	Class Test (CT) Marks (B)	End Semester Exam. (ESE) Marks (C)	Total Marks (A+B+C)	Pass Marks ESE	Pass Marks in the Subject	
1.	Principles of Electronic Communication	2021301	04	03	10	20	70	100	28	40	03
2.	Electronic Devices and Circuits	2021302	04	03	10	20	70	100	28	40	04
3.	Digital Electronics	2021303	03	03	10	20	70	100	28	40	02
4.	Electronic Measurements and Instrumentation	2021304	04	03	10	20	70	100	28	40	03
5.	Electric circuits and network	2021305	04	03	10	20	70	100	28	40	03
Total: 19							350	500			15

PRACTICAL

S.No	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION SCHEME					
			Periods per week	Hours of Exam	Practical		Total Marks	Pass Marks in the Subject	Credits
					Internal (PA)	External (ESE)			
6.	Principles of Electronic Communication Lab	2021306	02 50% Physical 50% Virtual	03	15	35	50	20	01
7.	Electronic Devices and Circuits Lab	2021307	02 50% Physical 50% Virtual	03	07	18	25	10	01
8.	Web Technology LAB	2018308	02 50% Physical 50% Virtual	03	07	18	25	10	01
9.	Electronic Measurements and Instrumentation Lab	2021309	04 50% Physical 50% Virtual	03	15	35	50	20	02
10.	Digital Electronics Lab	2021310	02 50% Physical 50% Virtual	03	07	18	25	10	01
Total: 12							175		06

TERM WORK

S.No	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION SCHEME				
			Periods per week	Marks of Internal (PA)	Marks of External (ESE)	Total Marks	Pass Marks in the Subject	Credits
11.	Python	2018311	2	07	18	25	10	01
12.	Summer Internship-I (4 weeks) after II Semester	2021312	-	15	35	50	20	02
						75		03
Total Periods per week of each duration One Hour = 33						Total Marks: 750		24

Principles of Electronic Communication

(Electronics Engineering Group)

Subject Code 2021301	Theory			No of Periods in One Session: 60			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	-	-	TA	:	10	
	-	-	-	CT	:	20	

Course Content:

	Contents (Theory)	Hrs.
UNIT 1	***ANALOG MODULATION:*** Concept of frequency translation. Amplitude Modulation: Description of full AM, DSBSC, SSB and VSB in time and frequency domains, methods of generation & demodulation, descriptions of FM signal in time and frequency domains.	12
UNIT 2	***PULSE ANALOG MODULATION*:** Ideal sampling, Sampling theorem, aliasing, interpolation, natural and flat top sampling in time and frequency domains.	10
UNIT 3	***PCM & DELTAMODULATION SYSTEMS***: Uniform and Non-uniform quantization. PCM and delta modulation, Signal to quantization noise ratio in PCM and delta modulation.	12
UNIT 4	***DIGITALMODULATION*:** Baseband transmission: Line coding (RZ, NRZ), inter symbol interference (ISI), pulse shaping, Nyquist criterion for distortion free base band transmission, raised cosine spectrum. Pass band transmission. Geometric interpretation of signals, orthogonalization	12
UNIT 5	***SPREAD-SPECTRUM MODULATION*:** Introduction, Pseudo-Noise sequences, direct sequence spread spectrum (DSSS) with coherent BPSK, processing gain, probability of error, frequency-hop spread spectrum (FHSS). Application of spread spectrum: CDMA.	14
	Total	**60**

LEARNING RESOURCES:

1. Principles of communication systems By Taub Schilling, T.M.H.
2. Fundamentals of communication systems By Proakis & Salehi, Pearson education
3. Communication Systems by Simon Hay kin, John Wiley
4. Communication Systems (Analog and Digital) By R.P. Singh, S.D. Sapre, T.M.H.
5. Modern Digital & Analog Communication by B.P. Lathi, Oxford Publications
6. Digital & Analog Communication Systems by K.S. Shanmugam, John Wiley
7. Principles of Electronic Communication Arun Majeswari FPH

Course outcomes: After the completion of the course, student will be able to

1. Apply different modulation and demodulation techniques used in analog communication.
2. Identify and solve basic communication problems.
3. Analyze different transmitter and receiver circuits.
4. Compare and contrast design issues, advantages, disadvantages and limitations of analog communication systems.

Electronic Devices and Circuits
(Electronics Engineering Group)

Subject Code 2021302	Theory			No of Periods in One Session :60			Credits
	No. of Periods Per Week			Full Marks	:	100	04
	L	T	P/S	ESE	:	70	
	04	-	-	TA	:	10	
	-	-	-	CT	:	20	

Course Content:

	Contents (Theory)	Hrs
UNIT 1	***Semiconductor and Diodes*** Definition, Extrinsic/Intrinsic, N-type & p-type PN Junction Diode – Forward and Reverse Bias Characteristics Zener Diode – Principle, characteristics, construction, working Diode Rectifiers – Half Wave and Full Wave. Filters – C, LC and PI Filters.	14
UNIT 2	***Bipolar Junction Transistor (BJT)*** NPN and PNP Transistor – Operation and characteristics Common Base Configuration – characteristics and working Common Emitter next line Configuration – characteristics and working Common Base Configuration – characteristics and working, High frequency model of BJT. Classification of amplifiers, negative feedback	14
UNIT 3	***Field Effect Transistors*** FET – Working Principle, Classification MOSFET Small Signal model N-Channel/ P-Channel MOSFETs – characteristics, enhancement and depletion mode, MOS- FET as a Switch Common Source Amplifiers Uni-Junction Transistor – equivalent circuit and operation	12
UNIT 4	***SCR, DIAC & TRIAC*** SCR – Construction, operation, working, characteristics, DIAC - Construction, operation, working, characteristics, TRIAC - Construction, operation, working, characteristics, SCR and MOSFET as a Switch, DIAC as bidirectional switch Comparison of SCR, DIAC, TRIAC, MOSFET	10
UNIT 5	***Amplifiers and Oscillators*** Feedback Amplifiers – Properties of negative Feedback, impact of feedback on different parameters Basic Feedback Amplifier Topologies: Voltage Series, Voltage Shunt, Current Series, Current Shunt Oscillator – Basic Principles, Crystal Oscillator, Non-linear/ Pulse Oscillator	10
	Total	**60**

LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Analog Circuits	A.K. Maini	Khanna Publishing House Ed. 2018 (ISBN: 978-93-86173-584)
2.	Electronic Devices and Circuits	S. Saliva Hanan and N. Suresh Kumar	McGraw Hill Education; Fourth edition (1 July 2017) ISBN: 978-9339219505
3.	Electronics Devices and circuit theory	Boylested & Nash- Elsy	Pearson Education India; 11 edition (2015) ISBN: 978-9332542600

4.	Electronic Principles	Albert Melvino & David Bates	Tata McGraw Hill Publication 2010 ISBN: 978-0070634244
5.	Electronics Devices & Circuits	Jacob Millman	McGraw Hill Education; 4 edition (2015) ISBN: 978-9339219543

Course Outcomes: After the completion of the course, student will be able to

1. Understand the working principle of PN junction diode and rectifiers.
2. Use transistor as low power amplifier.
3. Use MOSFET as switch and high-power applications.
4. Understand the working principle and characteristics of SCR, DIAC and TRIAC.
5. Use BJT as feedback amplifier and waveform generator.
6. Electronic Devices and Circuits Manish Sabharwal FPH

Digital Electronics
(Electronics Engineering Group)

Subject Code 2021303	Theory			No of Periods in One Session :50			Credits
	No. of Periods Per Week			Full Marks	:	100	02
	L	T	P/S	ESE	:	70	
	03	-	-	TA	:	10	
	-	-	-	CT	:	20	

Course Content:

	Contents (Theory)	Hrs
UNIT 1	***Number Systems & Boolean Algebra*** Introduction to different number systems – Binary, Octal, Decimal, Hexadecimal Conversion from one number system to another. Boolean variables – Rules and laws of Boolean Algebra, De-Morgan's Theorem Karnaugh Maps and their use for simplification of Boolean expressions	08
UNIT 2	***Logic Gates*** Logic Gates – AND, OR, NOT, NAND, NOR, XOR, XNOR: Symbolic representation and truth table Implementation of Boolean expressions and Logic Functions using gates Simplification of expressions	08
UNIT 3	***Combinational Logic Circuits*** Arithmetic Circuits – Addition, Subtraction, 1's 2's Complement, Half Adder, Full Adder, Half Subtractor, Full Subtractor, Parallel and Series Adders, Encoder, Decoder Multiplexer – 2 to 1 MUX, 4 to 1 MUX, 8 to 1 MUX. Applications Demultiplexer – 1 to 2 DEMUX, 1- 4 DEMUX, 1- 8 DEMUX	12
UNIT 4	***Sequential Logic Circuits*** Flip Flops – SR, JK, T, D, FF, JK-MS, Triggering Counters – 4 bit Up – Down Counters, Asynchronous/ Ripple Counter, Decade Counter-Mod 3, Mod 7 Counter, Johnson Counter, Ring Counter Registers – 4bit Shift Register: Serial In Serial Out, Serial in Parallel Out, Parallel In Serial Out, Parallel In Parallel Out	12
UNIT 5	***Memory Devices*** Classification of Memories – RAM Organization, Address Lines and Memory Sixe, Static RAM, Bipolar RAM, cell Dynamic RAM, D RAM, DDR RAM Read Only memory – ROM organization, Expanding memory, PROM, EPROM, EEPROM, Flash memory Data Converters – Digital to Analog converters, Analog to Digital Converters	10
	Total	**50**

LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Digital principles & Applications	Albert Paul Melvino & Donald P. Leach	McGraw Hill Education; Eighth edition ISBN: 978-9339203405
2.	Digital Electronics	Roger L. Tok Heim Macmillan	McGraw-Hill Education (ISE Editions); International 2 Revised ed edition ISBN: 978-0071167963

3.	Digital Electronics – an introduction to theory and practice	William H. Goth-Mann	Prentice Hall India Learning Private Limited; 2 edition ISBN: 978-8120303485
4.	Fundamentals of Logic Design	Charles H. Roth Jr.	Jaco Publishing House; First edition ISBN: 978-8172247744
5.	Digital Electronics	R. Anand	Khanna Publications, New Delhi (Edition 2018) ISBN: 978-93-82609445

Course Outcomes: After the completion of the course, student will be able to

1. Use number system and codes for interpreting working of digital system.
2. Use Boolean expressions to realize logic circuits.
3. Build simple combinational circuits.
4. Build simple sequential circuits.
5. Test data converters and PLDs in digital electronic systems.
6. Digital Electronics P.Mahapatra FPH
7. Digital Electronics Deepak rathi FPH

Electronic Measurements and Instrumentation

(Electronics Engineering Group)

Subject Code 2021304	Theory			No of Periods in One Session :60			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	-	-	TA	:	10	
	-	-	-	CT	:	20	

Course Content:

Contents (Theory)		Hrs
UNIT 1	***Basics of Measurements and Bridges*** Accuracy & precision, Resolution Types of Errors DC Bridges – Wheatstone and Kelvin Double Bridge AC Bridges - Maxwell's Bridge, Hay's Bridge, Anderson Bridge, De- Sauty's Bridge	12
UNIT 2	***Potentiometer*** Basic DC slide wire Potentiometer Crompton's DC Potentiometer Applications of DC Potentiometer AC Potentiometers Applications of AC Potentiometers	10
UNIT 3	***Measuring Instruments*** Permanent Magnet Moving Coil Instruments (PMMC) Moving Iron type Instruments (MI) Electro Dynamo Type Instruments Single Phase Energy Meter	08
UNIT 4	***Electronic Instruments*** Electronic Voltmeter and Digital Voltmeter Electronic Multimeters Q – Meter Vector Impedance Mete	08
UNIT 5	***Oscilloscopes*** Cathode ray tube: construction, operation, screens, graticules Vertical deflection system, Horizontal deflection system, Delay line, Measurement of frequency, time delay, phase angle and modulation index (trapezoidal method) Oscilloscope probe: Structure of 1:1 and 10:1 probe Multiple Trace CRO	10
UNIT 6	***Transducers*** Classification, Selection Criteria, Characteristics, Construction, Working Principles and Application of following Transducers: RTD, Thermocouple, Thermistor LVDT, Strain Gauge Load Cell Piezoelectric Transducers	12
	Total	**60**

LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Electrical & Electronic Measurement & Instruments	A.K. Sawhney	Dhanpat Rai & Sons, India

2.	Electronic Instrument and Measurement Technique	W.D. Cooper	Prentice Hall International, India.
3.	Electronic Measurement & Instrumentation	J.G. Joshi	Khanna Publishing House, Delhi
4.	Measurement systems application and design	E.O. Develin and D. N. Manic	The McGraw-Hill
5.	Electronic Measurements and Instrumentation	Oliver and Cage	The McGraw-Hill
6.	Basic Electrical Measurement	M.B. Stout	Prentice hall of India, India
7.	Electronic Instrumentation	H. S. Kalsi	The McGraw-Hill
8.	Electrical and Electronics Measurement and Instrumentation	Prithwiraj Pukrait, Bud- haditya Biswas, Santana Das, Chiranjib Coley	The McGraw-Hill

Course Outcomes: After the completion of the course, student will be able to

1. Understand the working of various types of AC and DC bridges.
2. Use the relevant instrument to measure specified parameters.
3. Calibrate different electronic instrument.
4. Interpret working of various types of sensors and transducers.
5. Use various types of transducers and sensors to measure quantities.
6. Electronic Measurements and Instrumentation Neeraj Bhargava FPH

Electric Circuits and Network
(Electronics Engineering Group)

Subject Code 2021305	Theory			No of Periods in One Session :50			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	1	-	TA	:	10	
	-	-	-	CT	:	20	

Course Content:

Contents (Theory)		Hrs.
UNIT 1	***Basics of Network and Network Theorem*** Node and Mesh Analysis Superposition Theorem Thevenin Theorem Norton Theorem Maximum Power transfer theorem Reciprocity Theorem	12
UNIT 2	***Graph Theory*** Graph of network, tree, incidence matrix F Tie-Set Analysis F Cut-Set Analysis Analysis of resistive network using tie-set and cut-set Duality	06
UNIT 3	***Time Domain and Frequency Domain Analysis*** Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits Initial and Final conditions in network elements Forced and Free response, time constants Steady State and Transient State Response Analysis of electrical circuits using Laplace Transform for standard inputs (unit, Ramp, Step)	12
UNIT 4	***Trigonometric and exponential Fourier series*** Discrete spectra and symmetry of waveform Steady state response of a network to non-sinusoidal periodic inputs, power factor, effective values Fourier transform and continuous spectra	10
UNIT 5	***Two Port Network*** Two Port Network Open Circuit Impedance Parameters Short Circuit Admittance Parameters Transmission Parameters Hybrid Parameters Interrelationship of Two Port Network Inter Connection of Two Port Network	10
	Total	**50**

LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Networks and Systems	Ashfaq Husain	Khanna Publishing House
2.	Network Analysis	M. E. Van Valkenburg	Prentice Hall of India
3.	Engineering Circuit Analysis	W. H. Hayat, J. E. Kemery and S. M. Durbin	McGraw Hill
4.	Electrical Circuits	Joseph Ed minister	Schumm's Outline, Tata McGraw Hill
5.	Basic Circuit Theory	Lawrence P. Huelsman	Prentice Hall of India
6.	Network & Systems	D. Roy Choudhury	Wiley Eastern Ltd
7.	Linear Circuit Analysis	De Carlo and Lin	Oxford Press

Course Outcomes: After the completion of the course, student will be able to

1. Use network theorems to determine the various parameters in circuits.
2. Obtain circuit matrices of linear graphs and analyze networks using graph theory.
3. Analyze circuits in time and frequency domain.
4. Write given functions in terms of Fourier series.
5. Use two port networks to determine the circuit parameters.
6. Electric Circuits and Networks — Umesh Kumar — FPH
7. Electric Circuits and Networks — Kamal Mishra — FPH
8. Network Theory — Umesh Kumar — FPH

Principles of Electronic Communication Lab
(Electronics Engineering Group)

	Theory			No of Periods in One Session: 24			Credits
	No. of Periods Per Week			Full Marks	:	50	
Subject Code 2021306	L	T	P/ S	Internal (PA)	:	15	
	-	-	02	External (ESE)	:	35	01

PRACTICALS/ EXERCISES

S. No	Practical Outcomes (Pros)	Hrs.
1	Harmonic analysis of a square wave of modulated waveform: measures modulation index	04
2	To modulate a high frequency carrier with sinusoidal signal to obtain FM signal	02
3	To study and observe the operation of a super heterodyne receiver	02
4	To modulate a pulse carrier with sinusoidal signal to obtain PWM signal and demodulate it	04
5	To modulate a pulse carrier with sinusoidal signal to obtain PPMsignal and demodulate it	04
6	To observe pulse amplitude modulated waveform and its demodulation.	04
7	To observe the operation of a PCM encoder and decoder. To consider reason for using digital signal x-missions of analog signals	02
8	To study & observe the amplitude response of automatic gain controller (AGC)	02
	Total=	**24**

Electronic Devices and Circuits Lab
(Electronics Engineering Group)

	Theory			No of Periods in One Session: 26			Credits
	No. of Periods Per Week			Full Marks	:	25	
Subject Code	L	T	P/S	Internal (PA)	:	07	
2021307	-	-	02	External (ESE)	:	18	01

PRACTICALS/ EXERCISES

S. No.	Practical Outcomes (Pros)	Hrs.
1.	Construct the circuit and plot the VI characteristics of the PN Junction Diode, find the cut in voltage	02
2.	Construct the circuit and plot the characteristics of a Zener Diode. Find the breakdown voltage	02
3.	Construct a Half Wave Rectifier and obtain regulation characteristics – Without Filters and with Filters. Compare the results	02
4.	Construct a Full Wave Rectifier and obtain regulation characteristics – Without Filters and with Filters. Compare the results	02
5.	Construct a Bridge Rectifier and obtain regulation characteristics – Without Filters and with Filters	02
6.	Obtain the characteristics of DIAC and TRIAC	02
7.	Simulate half wave, full wave and bridge rectifier using simulation tool like PSpice/ Orcad/ Multisim.	02
8.	Develop a simulation model for Voltage Series and Voltage Shunt Feedback Amplifiers	02
9.	Develop circuits for Voltage Series and Voltage Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.	02
10.	Develop a simulation model for Current Series and Current Shunt Feedback Amplifiers	04
11.	Develop circuits for Current Series and Current Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.	04
	Total=	26

WEB TECHNOLOGY LAB

SUBJECT CODE: 2018308	Practical			No. of period in one session:			Credits
	No. of Periods per Week			Full Marks:	:	25	01
	L	T	P/S	**Internal (PA)**	:	**07**	
		-	02	**External (ESE)**	:	**18**	

Course Learning Objectives:

This Lab course is intended to practice whatever is taught in theory class of 'Web Technologies'. Some of the things that should necessary be covered in lab.

Course outcomes:

Student will be able to program web applications using and will be able to do the following:

- Use LAMP Stack for web applications
- Write simple applications with Technologies like HTML, Java script, AJAX, PHP
- Connect to Database and get results
- Parse XML files Student will be able to develop/build a functional website with full features.

Content: Practical		Hrs.
Unit – 1	Home page Development static pages (using Only HTML) of an onlineBook store.	04
Unit – 2	Write a JavaScript to design a simple calculator to perform thefollowing operations: sum, product, difference and quotient.	06
Unit – 3	Write a PHP program to display a digital clock which displays thecurrent time of the server.	06
Unit – 4	Write an HTML code to display your CV on a web page.	04
Unit – 5	Write an XML program to display products.	05
Unit – 6	Create a web page with all types of Cascading style sheets.	06
Unit – 7	Write a PHP program to display a digital clock which displays thecurrent time of the server.	05
Unit – 8	Write a JavaScript that calculates the squares and cubes of the numbers from 0 to 10 and outputs HTML text that displays the resulting values in an HTML table format.	04

This is a skill course. More student practice and try to find solution on their own, better it will be.

Reference Books:

1. "Web Technologies--A Computer Science Perspective", Jeffrey C.Jackson
2. "Internet & World Wide Web How to Program", Deitel, Deitel, Goldberg, Pearson Education
3. "Web programming- Building Internet Application", Chris Bales
4. Web Applications: Concepts and Real-World Design, Knuckles

Electronic Measurements and Instrumentation Lab

(Electronics Engineering Group)

Subject Code 2021309	Theory			No of Periods in One Session: 26			Credits
	No. of Periods Per Week			Full Marks	:	50	02
	L	T	P/S	Internal (PA)	:	15	
	-	-	04	External (ESE)	:	35	

PRACTICALS/ EXERCISES

Sl. No.	Practical Outcomes (Pros)	Hrs
1.	Measure unknown inductance using following bridges (a) Anderson Bridge (b) Maxwell Bridge	04
2.	Measure Low resistance by Kelvin's Double Bridge	02
3.	Calibrate an ammeter using DC slide wire potentiometer	02
4.	Calibrate a voltmeter using Crompton potentiometer	02
5.	Measure low resistance by Crompton potentiometer	02
6.	Calibrate a single-phase energy meter by phantom loading	02
7.	Study the working of Q-meter and measure Q of coils	02
8	Study working and applications of (i) C.R.O. (ii) Digital Storage C.R.O. & (ii) C.R.O. Probes	02
9	Measurement of displacement with the help of LVDT	02
10	Draw the characteristics of the following temperature transducers (a) RTD (Pt-100) (b) Thermistor	04
11	Measurement of strain/force with the help of strain gauge load cell	02
	Total=	26

Digital Electronics Lab
(Electronics Engineering Group)

Subject Code 2021310	Theory			No of Periods in One Session : 30			Credits
	No. of Periods Per Week			Full Marks	:	25	
	L	T	P/S	Internal (PA)	:	07	
	-	-	02	External (ESE)	:	18	01

PRACTICALS/ EXERCISES

S. No.	Practical Outcomes (PrOs)	Hrs.
1.	To verify the truth tables for all logic fates – NOT OR AND NAND NOR XOR XNOR using CMOS Logic gates and TTL Logic Gates	02
2.	Implement and realize Boolean Expressions with Logic Gates	02
3.	Implement Half Adder, Full Adder, Half Subtractor, Full Subtractor using ICs	02
4.	Implement parallel and serial full-adder using ICs	02
5.	Design and development of Multiplexer and De-multiplexer using multiplexer ICs	02
6.	Verification of the function of SR,D, JK and T Flip Flops	02
7.	Design controlled shift registers	02
8.	Construct a Single digit Decade Counter (0-9) with 7 segment display	03
9.	To design a programmable Up-Down Counter with a 7-segment display.	03
10.	Study of different memory ICs	02
11	Study Digital- to – Analog and Analog to Digital Converters	02
12	Simulate in Software (such as PSpice) an Analog to Digital Converter	03
13	Simulate in Software (such as PSpice) an Analog to Digital Converter	03
	Total=	30

PYTHON (Term Work)

Subject Code 2018311	Term Work						Credits
	No. of Periods Per Week			Full Marks	:	25	01
	L	T	P/TW	Internal (PA)	:	07	
	—	—	02	External (ESE)	:	18	

CONTENTS: Practical		Hrs.	Marks
UNIT – 01	Write a program to demonstrate basic data type in python.		
UNIT – 02	Write a program to computedistance between two pointstaking input from the user (Pythagorean Theorem)		
UNIT – 03	Write a python program Using for loop, write a program thatprints out the decimal equivalent of 1+½+1/3….1/n		
UNIT – 04	Write a Python program to find first n prime numbers. Write a program to demonstrate list and tuple in python.		
UNIT – 05	Write a program using a for loop that loops over a sequence. Write a program using a while loop that asks the user for a number and prints a countdown from that number to zero.		
UNIT – 06	Write a Python Program to add matrices. Write a Python program to multiply matrices.		
UNIT – 07	Write a Python program tocheck if a string is palindrome or not.		
UNIT – 08	Write a Python program toExtract Unique values dictionary values		
UNIT – 09	Write a Python program to read file word by word Write a Python program to Get number of characters, words.		
UNIT – 10	Write a Python program for Linear Search		

References Books:

1. Taming Python by Programming, Jeeva Jose, Khanna Publishing House
2. Starting Out with Python, Tony Gaddis, Pearson
3. Core Python Programming, Wesley J. Chun, Prentice Hall
4. Python Programming: Using Problem Solving Approach, Reema Thareja, Oxford University
5. Introduction to Computation and Programming Using Python. John V. Gut tag, MIT Press.

Summer Internship-I (4 weeks) after II Semester

(Electronics Engineering Group)

	Theory			No of Periods in One Session: 30			Credits
	No. of Periods Per Week			Full Marks	:	50	
Subject Code 2021312	L	T	P/S	Internal (PA)	:	15	
	-	-	-	External (ESE)	:	35	02