STATE BOARD OF TECHNICAL EDUCATION, BIHAR

Scheme of Teaching and Examinations for
IIIRD SEMESTER DIPLOMA IN ELECTRONICAND COMMUNICATION ENGINEERING.

(Effective from Session 2020-21 Batch)
THEORY

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME Periods per Week	EXAMINATION – SCHEME 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	Credits
1.	Applied Mathematics	2000301	04	03	10	20	70	100	28	40	03
2.	Computer Programming Through 'C'	2000302	03	03	10	20	70	100	28	40	03
3.	Analog Electronics	2038303	03	03	10	20	70	100	28	40	03
4.	Basic Electronics Engineering	2038304	03	03	10	20	70	100	28	40	02
5.	Electric Circuits and Network	2021305	04	03	10	20	70	100	28	40	03
			Total: - 17				**350**	**500**			14

PRACTICAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHINGS CHEME Periods per Week	EXAMINATION – SCHEME Hours of Exam.	Practical Internal (PA)	Practical External (ESE)	Total Marks (A+B)	Pass Marks in the Subject	Credits
6.	Computer Programming Through 'C' Lab.	2000306	06 50% Physical 50% Virtual	03	15	35	50	20	03
7.	Analog Electronics Circuit Lab.	2038307	02 50% Physical 50% Virtual	03	15	35	50	20	01
8.	Web Technology Lab	2018308	02 50% Physical 50% Virtual	03	07	18	25	10	01
9.	Electrical Measurements and Instrumentation Lab	2021309	04 50% Physical 50% Virtual	03	15	35	50	20	02
			Total: - 14				**175**		**07**

TERM WORK

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME Periods per week	EXAMINATION – SCHEME Marks of Internal (PA)	Marks of External (ESE)	Total Marks	Pass Marks in the Subject	Credits
10.	Summer Internship-I (4 weeks) after II semester	2021310	-	15	35	50	20	02
11.	**PYTHON**	2018311	02	07	18	25	10	01
			Total: - 02			**75**		**02**
Total Periods per week Each of duration One Hours = 33						**Total Marks = 750**		24

APPLIED MATHEMATICS

Subject Code 2000301	Theory						Credits
	No. of Periods Per Week			**Full Marks**	:	100	03
	L	T	P/S	ESE	:	70	
	04	—	—	TA	:	10	
	—	—	—	CT	:	20	

	Contents: Theory	Hrs.	Marks

Unit -1	Integration:
	1.1 Definition of integration as anti-derivative. Integration of standard function.
	1.2 Rules of integration (Integrals of sum, difference, scalar multiplication).
	1.3 Methods of Integration.
	    1.3.1 Integration by substitution
	    1.3.2 Integration of rational functions.
	    1.3.3 Integration by partial fractions.
	    1.3.4 Integration by trigonometric transformation.
	    1.3.5 Integration by parts.
	1.4 Definite Integration.
	    1.4.1 Definition of definite integral.
	    1.4.2 Properties of definite integral with simple problems.
	1.5 Applications of definite integrals.
	    1.5.1 Area under the curve.
	    1.5.2 Area between two curves.
	    1.5.3 Mean and RMS values
		12	**20**

Unit -2	Differential Equation 2.1 Definition of differential equation, order and degree of differential equation. Formation of differential equation for function containing single constant. 2.2 Solution of differential equations of first order and first degree such as variable separable type, reducible to Variable separable, Homogeneous, Nonhomogeneous, Exact, Linear and Bernoulli equations. 2.3 Applications of Differential equations. 2.3.1 Laws of voltage and current related to LC, RC, and LRC Circuits.	10	15
Unit - 3	Laplace Transform 3.1 Definition of Laplace transform, Laplace transform of standard functions. 3.2 Properties of Laplace transform such as Linearity, first shifting, second shifting, multiplication by t^n, division by t. 3.3 Inverse Laplace transforms. Properties- linearly first shifting, second shifting. Method of partial fractions, 3.4 Convolution theorem. 3.5 Laplace transform of derivatives, 3.6 Solution of differential equation using Laplace transform (up to second order equation).	08	14
Unit - 4	Fourier Series 4.1 Definition of Fourier series (Euler's formula). 4.2 Series expansion of continuous functions in the intervals $(0, 2l), (-l, l), (0, 2\pi), (-\pi, \pi)$ 4.3 Series expansions of even and odd functions. 4.4 Half range series.	08	07

Unit - 5	Numerical Methods		
	5.1 Solution of algebraic equations Bisection method. Regula- Falsi method. Newton – Raphson method.	05	07
	5.2 Solution of simultaneous equations containing 2 and 3 unknowns Gauss elimination method. Iterative methods- Gauss seidel and Jacobi's methods.	05	07
	Total	48	70

Text /Reference Books:

Name of Authors	Titles of the Book	Name of the Publisher
Mathematicsforpolytechnic	S. P. Deshpande	Pune Vidyarthi Griha Prakashan, Pune
Calculus: single variable	Robert T. Smith	Tata McGraw Hill
Laplace Transform	Lipschutz	Schaum outline series.
Fourier series and boundary value problems	Brown	Tata McGraw Hill
Higher Engineering Mathematics	B. S. Grewal	Khanna Publication, New Delhi
Introductory Methods of Numerical analysis	S. S. Sastry	Prentice Hall Of India, New Delhi
Numerical methods for scientific & engineering computations	M. K. Jain & others	Wiley Eastern Publication.

COMPUTER PROGRAMMING THROUGH 'C'

	Theory			No of Period in one session :50			Credits
Subject Code 2000302	**No. of Periods Per Week**			**Full Marks**	**:**	**100**	**03**
	L	**T**	**P/S**	**ESE**	**:**	**70**	
	03	—	—	**TA**	**:**	**10**	
				CT	**:**	**20**	

Course Learning Objective:

Computers play a vital role in present day life, more so, in the professional life of technician engineers. In order to enable the students, use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various engineering applications of computers.

Objective:

The objectives of this course are to make the students able to:

- Develop efficient algorithms for solving a problem.
- Use the various constructs of a programming language viz. conditional, iteration and recursion.
- Implement the algorithms in "C" language.
- Use simple data structures like array, stacks and linked list solving problems.
- Handling File in "C".

	Contents: Theory	Hrs.	Marks
Unit -1	**Introduction to computer software:** Classification of computer software. System software. Application software. Programming languages. Machine languages. Assembly languages. High level programming languages. Algorithms and flowchart.	[03]	
Unit -2	**Fundamental of C languages.** Introduction. Background. Characteristics of C. Uses of C. Structure of a C program. Writing the first C program. Files used in a C program. Source code files. Header files. Object files. Binary executable files. Compiling and Executing C programs. Using comments. Characters used in C. Identifier.	[08]	

	Keyword or Reserved words.		
	Tokens.		
	Constants.		
	Numeric constant.		
	String Character constant.		
	Variables.		
	Variable Declaration.		
	Basic Data Types.		
	Additional Data types.		
	Operators and Expressions.		
	Operator Precedence and Associativity.		
	Type conversion and Type casting.		
	Input/ Output statements in C.		
Unit -3	**Decision Control and Looping Statements:**		
	Introduction to Decision control statements.		
	Conditional Branching statements.		
	If statement.		
	If-else statement.		
	If-else-if statement.		
	Switch case.		
	Iterative statements.		
	While loop.		
	Do-while loop.		
	For loop.		
	Nested loops.		
	Break and continue statements.		
	Break statement.		
	Continue statement.		
	Goto statement.		

Unit -4	**Functions in 'C'.** Uses of functions. User defined functions. Function Declaration. Calling a function. Actual and formal Arguments. Rules to call a function. Function propotype. Recursion. Use of Recursive function. Local or Internal variables. Global or External variables. Void function. Storage classes in C. Auto or Automatic Storage class. Static Storage class. Extern Storage class. Register Storage class.	[07]	
Unit -5	**Arrays.** Introduction. Declaration of Arrays. Accessing the Elements of an Array. Calculating the address of Array elements. Calculating the length of an Array. Storing values in Arrays. Initializing Arrays during Declaration. Inputting values from the keyboard. Assigning values to Individual Elements. Operations on Arrays. Traversing an Array. Inserting an Element in an Array. Deleting an Element from an Array. Merging Two Arrays. Searching for a value in an Array. Passing Arrays to functions. Two dimensional Arrays. Declaring Two-dimensional Arrays. Initializing Two-dimensional Arrays. Accessing the Elements of two-dimensional Arrays. Operations on Two-dimensional Arrays.	[07]	

			[07]	
Unit -6	**Pointers.** Understanding the Computer's Memory. Introduction to pointers. Declaring pointer variables. Pointer Expressions and pointer Arithmetic. Null pointers. Passing Arguments to function using pointer. Pointers and Arrays. Passing an Array to a Function. Dynamic Memory Allocation. Malloc ( ) function. Calloc ( ) function. Realloc ( ) function. Free ( ) function.			
Unit -7	**Structures and Unions.** Structures. Structure variables and Arrays. Initialization of structure variable and Array. Dot (•) Operator. Assigning value of a structure to Another structure. Structure within structures. Site of ( ) of a structure. Unions. Site of ( ) unions. Difference between a structure and an union. Enum Data Type. Typedef Declaration.		[04]	

Text / Reference Books -

1. Programming with C. Second Edition. Tata McGraw-Hill, 2000 - Byron Gottfried

2. How to solve by Computer, Seventh Edition, 2001, Prentice hall of India. - R.G. Dromey

3. Programming with ANSI-C, First Edition, 1996, Tata McGraw hill. - E. Balaguruswami

4. Programming with ANSI & Turbo C. First Edition, Pearson Education. - A. Kamthane

5. Programming with C. First Edition, 1997, Tara McGraw hill. - Venugopla and Prasad

6. The C Programming Language, Second Edition, 2001, Prentice Hall of India. - B. W. Kernighan & D.M. Ritchie

7. Programming in C, Vikash Publishing House Pvt. Ltd., Jungpura, New Delhi. - R. Subburaj

8. Programming with C Language, Tara McGraw Hill, New Delhi. - C. Balagurswami

9. Programming in C, Galgotia Publications Pvt. Ltd. Dariyaganj, New Delhi. - Kris A. Jamsa

10. The Art of C Programming, Narosa Publishing House, New Delhi. - Jones, Robin & Stewart

11. Problem Solving and Programming. Prentice Hall International. - A.C. Kenneth

12. C made easy, McGraw Hill Book Company, 1987. - H. Schildt

13. Software Engineering, McGraw Hill, 1992. - R.S. Pressman

14. Pointers in C, BPB publication, New Delhi. - Yashwant Kanetkar

ANALOG ELECTRONIC CIRCUIT

Subject Code 2038303	Theory			No of Period in one session: 50			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	20	

	Contents: Theory	Hrs.	Marks
Unit -1	**NOISE AND NOISE FIGURE IN AMPLIFIERS:** Thermal noise, short noise, flicker noise Fiss formula.	[05]	
Unit -2	**POWER AMPLIFIERS:** Classification of amplifiers and class-c, conversion efficiency complimentary symmetry amplifiers.	[07]	
Unit -3	**IDEAL AMPLIFIERS:** Ideal voltage amplifier, ideal current amplifiers, ideal trans resistance amplifier, ideal trans conductance amplifier, distortions, amplitude distortions, harmonic distortions, frequency distortions and phone distortion.	[07]	
Unit -4	**TRANSISTOR AMPLIFIERS:** Multistage transistor amplifier, gain, frequency response, decibel gain, band width of a multistage amplifier. Small signal amplifier and large signal amplifier, difference between voltage amplifier and power amplifier. Classification of power amplifier. Push-pull amplifier.	[12]	
Unit -5	**FEEDBACK AMPLIFIER AND OSCILLATORS:** Feedback, concept of negative and positive feedback, considerations of gain. bandwidth, distortions etc. with negative feedback Barkhuizen criterion for oscillations, Colpitts oscillator, Wein bridge oscillator.	[06]	
Unit -6	**H-PARAMETERS:** Determination of h -parameters, h-parameters equivalent circuit, h-parameter of a transistor, Approximate hybrid formulae for Zi, Ai, Av and Zo.	[08]	
Unit -7	Bootstrapping in emitter follower, Darlington pair cascade amplifier.	[05]	
	Total	50	

Text / Reference Books -		
Electronics	-	Milliman's and Halkias
Principle of electronics	-	V.KMehta & S Chand. (MCGRAW HILL)

BASIC ELECTRONICS ENGINEERING

Subject Code **2038304**	Theory			No of Period 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	

Rationale:

Electronics is a major part of our day-to-day life. In each and every field electronic systems are used. Basic electronics is one of the subjects which are the base of all advance electronics. It starts with PN junction which makes the student to follow the functioning of all semiconductor-based electronics. This is a core group subject and it develops cognitive and psychomotor skills.

Objectives: Student will be able to:

1) Describe the formation of PN junction.
2) Draw the characteristics of basic components like diode, transistor etc.
3) Draw and describe the basic circuits of rectifier, filter, regulator and amplifiers.
4) Know voltage amplifiers.
5) Test diode and transistors.
6) Read the data sheets of diode and transistors.

	Contents: Theory	Hrs.	Marks
Unit -1	**Semiconductor Physics** Semiconductor Bonds in Semiconductor and their application. Energy Band Description of Semiconductor Effects of Temperature on Semiconductors Intrinsic and Extrinsic Semiconductor n- type and p- type Semiconductor PN Junction, V – I Characteristics of p n junction and its properties	[08]	
Unit -2	**Semiconductor Diode** Semiconductor diode Crystal diode as a rectifier Crystal diode rectifier and its kinds Efficiency of full wave rectifier Ripple factor Filter circuits and its types Zener diode	[08]	
Unit -3	**Special Purpose diodes** LED and its advantage Photo diode, characteristics and its applications Tunnel diode, Varactor diode and its applications Shockley diode	[06]	
Unit -4	**Transistors** Transistor Transistor as an amplifier Transistor connection (CB, CE, CC) Transistor load line analysis Operating point Cut off and Saturation points Semiconductor devices numbering system	[08]	
Unit -5	**Transistor Biasing** Transistor biasing Stabilization Stability factor Method of transistor biasing	[08]	
Unit -6	**Single Stage Transistor Amplifiers** Single stage transistor amplifiers Phase reversal D.C. and A.C. equivalent circuits Voltage gain of CE Amplifier Classification of Amplifier	[08]	
Unit -7	Feedback, -ve feedback, +ve feedback, oscillations, multistage amplifier (Fundamental idea only).	[04]	
	Total	**50**	

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	
	L	T	P/S	ESE	:	70	
	04	1	-	TA	:	10	03
	-	-	-	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. Hayt, J. E. Kemmerly and S. M. Durbin	McGraw Hill

4.	Electrical Circuits	Joseph Edminister	Schaum's Outline, Tata McGraw Hill
5.	Basic Circuit Theory	Lawrence P. Huelsma	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.

COMPUTER PROGRAMMING THROUGH 'C' LAB

Subject Code **2000306**	Practical			No. of Period in one session: 84			Credits
	No. of Periods Per Week			**Full Marks**	:	50	**03**
	L	**T**	**P/S**	**Internal (PA)**	:	15	
	—	—	06	**External (ESE)**	:	35	

- **Course Learning Objectives:**
- This Lab course is intended to practice what is taught in theory class of 'Computer Programming' and become proficient in computer programming. Computer programming is all about regular practice. Students should work on solved and unsolved problems listed in the text books, and the problems given by the teacher. Some of the topics that should necessary be covered in lab are listed below.
- **Course outcomes:**
- Student should be able to write code snippets, and then compile, debug and execute them.

Content: Practical		Hrs.	Marks
Unit – 1	Familiarization with programming environment (Editor, Compiler, etc.)		
Unit – 2	Programs using, I/O statements and various operators		
Unit – 3	Programs using expression evaluation and precedence		
Unit – 4	Programs using decision making statements and branching statements		
Unit – 5	Programs using loop statements		
Unit – 6	Programs to demonstrate applications of n dimensional arrays		
Unit – 7	Programs to demonstrate use of string manipulation functions		
Unit – 8	Programs to demonstrate parameter passing mechanism		
Unit – 9	Programs to demonstrate recursion		
Unit – 10	Programs to demonstrate use of pointers		
Unit – 11	Programs to demonstrate command line arguments		
Unit – 12	Programs to demonstrate dynamic memory allocation		
Unit – 13	Programs to demonstrate file operations		

- The language of choice will be C. This is a skill course. More you practice, better it will be.
- **Reference Books:**
- 1. Let Us C, Yashavant Kanetkar
- 2. Problem Solving and Programming in C, R.S. Salaria, Khanna Publishing House
- 3. C Programming Absolute Beginner's Guide, Dean Miller and Greg Perry
- 4. The C Programming Language, Kernighan and Ritchie, Prentice Hall of India
- 5. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill
- 6. C Programming & Data Structures, B. A. Fouruzan and R. F. Gilberg, CENGAGE Learning.

ANALOG ELECTRONICS CIRCUIT LAB.

Subject Code 2038307	Practical			No of Period in one session:			Credits
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	Internal (PA)	:	15	01
	—	—	02	External (ESE)	:	35	

	Contents: Practical	Hrs.	Marks
Unit -1	Wiring of RC coupled single stage FET amplifier and determination of the gain-frequency response, input and output impedances.		
Unit -2	Wiring of RC coupled single stage BJT amplifier and determination of the gain-frequency response, input and output impedances.		
Unit -3	Wiring of BJT Darlington Emitter follower with and without bootstrapping and determination of the gain, input and output impedances (single circuit) (one experiment)		
Unit -4	Wiring and testing for the performance of BJT-RC phase shift oscillator for fo $\geq$ 10 KHz.		
Unit -5	Testing for the performance of BJT-Hatley and Colpitts oscillators for RF range fo $\geq$ 100KHz.		
Unit -6	Testing for the performance of BJT-crystal oscillators for fo $\geq$ 100KHz.		
Unit -7	Testing of diode clipping (single/Double ended) circuits for peak clipping, peak detection.		
Unit -8	Testing of clamping circuits: positive clamping/negative clamping.		
Unit -9	Testing of a transformer less class-B push pull power amplifier and determination of its conversion efficiency.		
Unit-10	Testing of half wave, full wave and bridge rectifier circuits with and without capacitor filter. Determination of ripple factor, regulation and efficiency.		
Unit-11	Verification of Thevenin's Theorem and maximum power transfer theorem for DC circuit.		
Unit-12	Characteristics of Series and Parallel Resonant Circuits.		
Unit-13	Verification of Norton's theorem		
Unit-14	Verification of leads transistors.		

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.**	**Marks**
Unit – 1	Home page Development static pages (using Only HTML) of an online Book store.	04	
Unit – 2	Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.	06	
Unit – 3	Write a PHP program to display a digital clock which displays the current 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 the current 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 MEASUREMENT AND INSTRUMENTATION LAB

Subject Code 2021309	Practical			No of Period in one session:			Credits
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S				02
	—	—	04	Internal (PA)	:	15	
				External (ESE)	:	35	

Rationale

The study of this subject will help a student to gain the knowledge of working principles and operation of different electronic instruments (analog and digital). The practical work done in this subject will help to acquire skills in operation and testing of instruments as per their specifications.

Contents: Practical

LIST OF PRACTICALS: -		Hrs.	Marks
Unit -1	Conversion of Galvanometer into Ammeter and Voltmeter.		
Unit -2	Calibration of Ammeter, Voltmeter and Wattmeter.		
Unit -3	Determination of Inductance, Capacitance using AC bridges.		
Unit -4	Use of AC potentiometer, chokes, resistance model.		
Unit -5	To observe the loading effect of a multi-meter while measuring voltage across a low resistance and high resistance.		
Unit -6	Measurement of voltage, frequency, time period and phase angle using Cathode Ray Oscilloscope (CRO).		
Unit -7	Measurement of time period, frequency,		
Unit -8	Measurement of rise, fall and delay times using a Cathode Ray Oscilloscope.		
Unit -9	Measurement of R, L and C using a LCR bridge/Universal bridge.		
	Total		

SUMMER INTERNSHIP-I (4 WEEKS) AFTER II SEMESTER - TW

Subject Code 2021310	Term Work			No of Period in one session:			Credits
	No. of Periods Per Week			Full Marks	:	50	02
	L	T	P/S	Internal (PA)	:	15	
	—	—	-	External (ESE)	:	35	

PYTHON (Term Work)

Subject Code 2018311	Term Work			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	

	CONTENTS	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 inpython.		
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. Guttag, MIT Press.