Veermata Jijabai Technological Institute (V.J.T.I)

(Central Technological Institute, Maharashtra State, INDIA)

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Programme Name: Diploma In Electronics Engineering

Programme Code	: DELNE	With Effect From Academic Year	: 2023-24
Duration of Programme	: 6 Semester	Duration	: 16 Weeks
Semester	: Fourth	Scheme	: R-2023

Sr No	Course Title	Abbreviation	Course Type	Course Code	Total IKS Hrs for Sem.	CL	TL	LL	Self-Learning (Term Work + Assignment)	Notional Learning Hrs./Week	Credits	Paper Duration (hrs.)	FA-TH Max	SA-TH Max	Total Max	Total Min	FA-PR Max	FA-PR Min	SA-PR Max	SA-PR Min	SLA Max	SLA Min	Total Marks
						Actual Contact Hrs./Week							Theory				Based on LL & TL — Practical				Based on Self Learning		
1	ANALOG COMMUNICATION	AC	DSC	233EX41	0	3	-	2	-	5	2.5	3	30	70	100	40	25@	10	25#	10	-	-	150
2	CONTROL SYSTEMS	CS	DSC	233EX42	0	3	2	2	-	7	3.5	3	30	70	100	40	25@	10	25#	10	-	-	150
3	ELECTRONICS II	EC- II	DSC	233EX43	0	3	-	2	-	5	2.5	3	30	70	100	40	25@	10	25#	10	-	-	150
4	ANALOG INTEGRATED CIRCUITS	AIC	DSC	233EX44	0	3	-	2	-	5	2.5	3	30	70	100	40	25@	10	25#	10	-	-	150
5	DATA STRUCTURES AND ALGORITHMS	DSA	DEC	233EX45	0	3	-	2	-	5	2.5	3	30	70	100	40	25@	10	25#	10	-	-	150
6	ELECTRONICS WORKSHOP	EW-II	SEC	233EX46	0	1	-	2	-	3	1.5	-	-	-	-	-	25@	10	-	-	25@	10	50
7	INTRODUCTION TO IOT (ONLINE)	ARP	SEC	233EX47	0	1	-	2	3	6	3	-	-	-	-	-	25@	10	25#	10	25@	10	75
8	DEVELOPMENT OF LIFE SKILLS & PROFESSIONAL PRACTICE	DOLPS	VEC	233EX48	2	-	-	2	2	4	2	-	-	-	-	-	-	-	-	-	25@	10	25
	Total				2	17	2	16	5	40	20		150	350	500		175		150		75		900

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA -Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination, @$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC): 2, Discipline Specific Elective (DSE): 0, Value Education Course (VEC): 1, Intern. /Apprentice /Project /Community (INP): 0, Ability Enhancement Course (AEC): 2, Skill Enhancement Course (SEC): 2, Generic Elective (GE): 0

Curriculum Coordinator

Head Diploma in Electronics Engineering

Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: ANALOG COMMUNICATION
COURSE CODE	: 233EX41

I. TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME						EXAMINATION SCHEME											
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	-	2.5	3	30	70	28	100	40	25	10	25	10	-	-	150

II. RATIONALE

To teach students facts, concepts and principles of analog communication system. To make students study different techniques used in transmitter and receiver in communication systems. To make student well versed in the prerequisites for further studies in advanced communication.

III. COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning

- CO1- Identify concepts of different analog communication techniques.
- CO2- Understand fundamentals working of different modulation /demodulation used in communication.
- CO3- Analyze performance of various techniques in transmitter and receiver.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION - I								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	COS	R Level	U Level	A Level
1	1	**Introduction**	**3**	**5**		40%	40%	20%
	1.1	Block Diagram of communication system, Need of modulation	1	2	1	40%	40%	20%

Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
	1.2	Types of Electronics communication system, Simplex, Duplex, Full Half The Electromagnetic Spectrum ((Different bands and their Frequencies)	1	2	1	40%	40%	20%
	1.3	Concepts of bandwidth.	1	1	1	40%	40%	20%
2		**Amplitude Modulation and Demodulation**	10	15		40%	40%	20%
	2.1	Basic Definition , Modulation index, its significant, simple Numerical.	2	2	1,2	40%	40%	20%
	2.2	Mathematical representation of amplitude Modulated Wave and its meaning(Concept of Side Bands). Representation of AM signal in time and frequency domain.	2	3	1,2	40%	40%	20%
	2.3	Bandwidth of AM wave, Simple numerical	1	2	1,2	35%	35%	30%
	2.4	Different Types of AM Modulator and Demodulator	3	6	1,2,3	35%	35%	30%
	2.5	Single Side Band , Double Side Band and Its Application	2	2	1,2,3	35%	35%	30%
3		**Frequency Modulation and Demodulation**	11	15				
	3.1	Definition, Deviation Ratio	2	2		40%	40%	20%
	3.2	Mathematical representation of Frequency Modulated Wave and its meaning. Representation of FM signal in time and frequency domain. Bandwidth in FM	3	5		40%	40%	20%
	3.3	Concepts of Pre emphasis and De-emphasis	2	2		35%	35%	30%
	3.4	Different Types of FM Modulator and Demodulator	4	6		30%	30%	40%

SECTION - II								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4		**Radio Receiver**	8	12				
	4.1	Introduction to radio Receiver	1	2	1,2	40%	40%	20%
	4.2	Characteristics of Radio Receiver – Sensitivity, selectivity and fidelity tunes radio receiver and its limitation.	1	2	2,3	30%	30%	40&
	4.3	AM Receiver:-Superhetrodyne receiver- block diagram, working, RF section and	3	4	2,3	20%	20%	60%

		characteristics Intermediate frequency and IF amplifier						
	4.4	AM detector:- Simple diode detector, automatic gain control(AGC) its need and Types.	3	4	2,3	25%	25%	50%
5		**Pulse Communication**	6	9		35%	35%	30%
	5.1	Introduction, Comparison with Continuous wave modulation	1		1,2	40%	40%	20%
	5.2	Sampling Theorem, Nyquist rate, aliasing, natural and flat top sampling.	2		1,2	40%	40%	20%
	5.3	PAM, definition , generation, block diagram wave form analysis	1		1,2	40%	40%	20%
	5.4	PWM, definition , generation, block diagram wave form analysis	1		1,2	40%	40%	20%
	5.5	PPM definition , generation, block diagram wave form analysis	1		1,2	40%	40%	20%
6		**Antenna wave propagation and data communication**	10	14				
	6.1	Antenna fundamentals , radio waves, polarization	2	4	2,3	40%	40%	20%
	6.2	Antenna Parameter: Radiation pattern, directivity, Gain , Effective radiated power, Antenna aperture, antenna reciprocity, Antenna Intensity, Radiation resistance	2	2	2,3	40%	40%	20%
	6.3	Basic Antenna: Half wave Dipole ,Folded dipole	2	2	2,3	40%	40%	20%
	6.4	Type of propagation : Ground Wave, Ionosphere, sky wave , space wave, Type of propagation : Ground Wave, Ionosphere, sky wave , space wave,	2	4	2,3	40%	40%	20%
	6.5	Data communication concepts, Concept of MODEM	2	2	2,3	40%	40%	20%

V.   LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COS
1	Study AM/FM signal using Arbitrary Function Generator	2	1
2	Generation of AM signal using BJT Amplifier.	2	1,2
3	To study Generation of AM signal using balanced modulator IC AD633N	2	1,2,3
4	To study Demodulation of AM signal using peak detector	2	1,2,3
5	To study generation of FM signal using timer IC	2	1,2,3

6	To study generation of FM signal using timer VCO IC	2	1,2,3
7	To demodulate FM signal using PLC IC	2	2,3
8	To study selectivity of VCO IC	2	2,3
9	To study BJT as a mixer of different wave.	2	2,3
10	To study generation of PAM signal	2	1,2,3
11	To study generation of PWM signal	2	1,2,3
12	To study generation of PPM signal	2	1,2,3
13	To measure the directivity of radiation pattern of yagi uda Antenna.	2	1,2,3
14	To plot the directional pattern of a antenna	2	1,2,3

VI. ASSESMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)

- Tutorials
- Midterm Test Exam
- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)

- End Term Exam
- Micro-project/Assignments
- Tutorial Performance

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for	PO-6 Project Management	PO-7 Life	PSO- 1	PSO- 2	PSO- 3

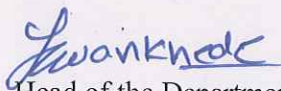|	Specific Knowledge				Society, Sustainability and Environment		Long Learning			
CO1	3	1	1	1	-	2	3	2	1	1
CO2	2	3	3	1	-	1	3	1	2	1
CO3	3	2	2	1	2	1	3	1	1	2

Legends :- High:03, Medium:02, Low:01, No Mapping: -

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFRENCE BOOKS/WEBSITES

Sr.No	Author	Title	Publisher
1.	George Kennedy and davis	Electronics Communication System	4th Edition , Tata McGraw-Hill
2	Louis E. Frenzel	Communication Electronics	4th Edition , Tata McGraw-Hill
3	Roddy & Collen	Electronics Communication	4th Edition , Prentice Hall India Pvt. Ltd.
4.	Wayne Tomasi	Electronics Communication System Fundamental Through Advanced	5th Edition Pearson Education
5.	Hsu & Mitra	Analog & Digital Communication	1st Edition , Tata McGraw-Hill

SOFTWARE/LEARNING WEBSITES

Curriculum Coordinator   Head of the Department   Dean Diploma

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: CONTROL SYSTEM
COURSE CODE	: 233EX42

I.TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME					EXAMINATION SCHEME											
										Based on LL & TL Practical				Based on Self-learning		
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		FA-PR (CA)		SA-PR (PR/OR)		SLA		TOTAL MARKS
						Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
3	2	2	-	3.5	3	30	70	100	40	25	10	25	10	-	-	150

II. RATIONAL

To teach students basic facts, concepts and principles of various measurement devices and instrumentation as a tool to analyze engineering problems. To make students well versed in the prerequisites for further studies in instrumentation.

III. COURSE OUTCOMES (COs)

Students will be able to achieve the following COs on completion of course based learning

- CO1- Describe the concept of a control system and convert it into form of transfer function.
- CO2 - Analyze the system.
- CO3 - Determine stability of system using different methods.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION - I								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1		**Introduction to control system**	8	12	1	40%	40%	20%
	1.1	Different Types of Control Systems with examples	3	4	1	40%	40%	20%
	1.2	Open Loop & Closed Loop Control Systems: Definition, Block Diagram	3	4	1	40%	40%	20%
	1.3	Concept of transfer function	2	4	1	40%	40%	20%
2		**Mathematical Modelling of Dynamic Systems**	8	11	1	30%	30%	40%
	2.1	Modelling in Frequency Domain (Transfer function Approach for RLC circuits)- Block diagram reduction Algebra	4	6	1	30%	30%	40%
	2.2	Signal flow graphs and Mason's gain formula	4	5	1	30%	30%	40%

3		Time Response Analysis	8	12	2	30%	30%	40%
	3.1	Time domain analysis- first order system, impulse and step response analysis of second order system	3	4	2	30%	30%	40%
	3.2	Steady-state Error Analysis "Type" of the systems	3	4	2	30%	30%	40%
	3.3	Static Error Coefficients and Steady-State Errors	2	4	2	30%	30%	40%

SECTION - II								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4		**Root Locus Method**	8	12	2	30%	30%	40%
	4.1	Root Locus concept,	4	6	2	30%	30%	40%
	4.2	Rules and construction of approximate (without scale) Root Loci	4	6	2	30%	30%	40%
5		**Stability Analysis**	8	12	3	40%	30%	30%
	5.1	Concept of Stability	3	4	3	40%	30%	30%
	5.2	Routh-Hurwitz stability criterion	3	4	3	40%	30%	30%
	5.3	Relative stability	2	4	3	40%	30%	30%
6		**Frequency Response Analysis**	8	11	3	30%	30%	40%
	6.1	Frequency Domain Specification (no derivations)	3	4	3	30%	30%	40%
	6.2	Determination of Stability from Bode Plot	3	4	3	30%	30%	40%
	6.3	Determination of Stability from Polar Plot	2	3	3	30%	30%	40%

V. **LIST OF PRACTICALS/ASSIGNBMENTS/TUTORIALS**

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COs
1	Time response of First order systems.	2	1
2	Time response of Second order systems (Over damped)	2	1
3	Time response of Second order systems (under damped)	2	1
4	Bode Plot of First order systems.	2	2,3
5	Bode Plot of Second order systems(Over damped)	2	2,3
6	Bode Plot of Second order systems(Critically damped)	2	2,3
7	Bode Plot of Second order systems(under damped)	2	2,3
8	Determination of transfer function by Drawing Bode Plot	2	2,3
9	Polar plot of first order system.	2	2,3

10	Polar plot of second order system.	2	2,3

VI. SUGGESTED SELF LEARNING ASSIGNMENTS/MICROPROJECT/ACTIVITIES

Assignments (if any)

- Assignments on each chapter which include numerical, diagrams.

VII. ASSESMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)
- Experiments performance and journal completion
- Mid Semester Test
- Class test
- Term Work

Summative Assessment (Assessment of Learning)
- End Term Exam

VIII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2	PSO- 3
CO1	3	3	3	3	3	2	3	3	3	1
CO2	3	3	3	2	2	2	1	3	3	1
CO3	3	1	1	1	1	2	1	3	3	1

Legends :- High:03, Medium:02,Low:01, No Mapping: -

IX. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFRENCE BOOKS/WEBSITES

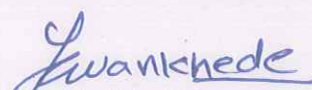| Sr.No	Author	Title	Publisher
1	Katsuhiko Ogato	Modern Control Engineering	4th Edition Prentice Hall of India Ltd.
2	J Nagrath and M Gopal	Control Systems Engineering	5th New Age International
3	Norman S Nise	Control Systems Engineering	5thEdition,Wiley India Pvt. Ltd.
4	B. C Kuo and F Golnaraghi	Automic Control System	8th Edition Wiley India Pvt. Ltd.

Learning Websites and portals:

Sr.No	Link /Portal	Description
1	https://archive.nptel.ac.in/courses/107/106/107106081	Control System lectures
2	https://www.vssut.ac.in/lecture_notes/lecture1423904331.pdf	Control System notes

Curriculum Coordinator   Head of the Department   Dean Diploma

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: ELECTRONICS II
COURSE CODE	: 233EX43

I. TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME						ASSESSMENT SCHEME											
CL	TL	LL	Self-learning	CR	Total IKS Hrs for Sem	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	-	2.5	-	3	30	70	100	40	25	10	25	10	-	-	150

II. RATIONALE

Foster proficiency in electronic circuit analysis and design, emphasizing practical implementation skills crucial for real-world applications. By exploring concepts, students will develop a robust understanding of electronics essential for engineering endeavors.

III. COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning

- **CO1-** Recall the concept of transistor and describe the construction and operation of JFET and MOSFET.

- **CO2-** Understand the transfer characteristics, biasing of Field Effect Transistor (FETs), operation of the feedback and oscillator circuits.

- **CO3-** Analyze and design basic transistor amplifier circuits and their parameters and applications.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I						
Unit & Sub-Unit	Topics/Sub-topics	Hrs	Marks	CO	R Level	U Level	A Level

1		Introduction to Junction Field Effect Transistors (JFET)	09	12		40%	30%	30%
	1.1	Introduction of FET, Types of FET.	3	4	1	40%	30%	30%
	1.2	Introduction, Construction & Characteristics of Junction Field Effect Transistor (JFET), Symbol of n-channel and p- channel	3	4	1	40%	30%	30%
	1.3	Definition Drain and TransferCharacteristics (Shockley's Equation), specifications (parameters)	3	4	2,3	40%	30%	30%
2		Introduction to MOSFET	09	12		30%	40%	30%
	2.1	Introduction to MOSFET, Depletion-type, Enhancement-type MOSFET's, Their construction, characteristics & parameters.	3	4	1,2	30%	40%	30%
	2.2	Vertical MOSFET (VMOS) & Complementary MOSFET (CMOS).	3	4	1,3	30%	40%	30%
	2.3	JFET Voltage Variable Resistor (VVR) and CMOS inverter switch applications. Application of FET and MOSFET	3	4	2,3	30%	40%	30%
3		Biasing of FET	06	11		40%	40%	20%
	3.1	Fixed Bias, Self- Bias and Voltage Divider biasing circuits of JFET.	2	4	1,2	40%	40%	20%
	3.2	Biasing Circuits of depletion and enhancement type MOSFET.	2	4	1,2	40%	40%	20%
	3.3	Small signal analysis of FET (Common Source or Drain).	2	4	3	40%	40%	20%

SECTION-II								
Unit & Sub- Unit		Topics/Sub-topics						
4		Power Amplifiers	07	10		20%	35%	45%
	4.1	Introduction to power amplifiers, Classification, Distortion in amplifiers	2	2	1,3	20%	35%	45%
	4.2	Class A large signal amplifiers, efficiency of class A amplifier, class B power amplifier, efficiency of class B amplifier.	2	3	2,3	20%	35%	45%
	4.3	Class B push pull amplifier, Complementary symmetry class B push pull amplifiers, class AB push pull amplifier	3	5	2,3	20%	35%	45%
5		Feedback Circuits	09	13		40%	40%	20%
	5.1	Concept of feedback, General block diagram of feedback amplifier, Concept of negative & positive feedback sampling network comparator or mixer network	2	3	1,2	40%	40%	20%

5.2	General characteristics of negative feedback amplifiers	2	3	1,3	40%	40%	20%
5.3	Effect of Feedback on input and output characteristics	2	3	1,2	40%	40%	20%
5.4	Four basic feedback topology, comparison of topology	3	4	1,2	30%	40%	30%
6	**Oscillator Circuits**	**08**	**12**		30%	40%	30%
6.1	Definition, concept of Oscillator	2	3	1,2	30%	40%	30%
6.2	Types of oscillators	2	3	2	30%	40%	30%
6.3	RC phase shift, Wien Bridge, Hartley and Colpitt Oscillator circuits. LC oscillator (Application, Advantages and disadvantages), Multivibrator using Transistor and it's working.	4	6	2,3	30%	40%	30%

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage.

V. LIST OF PRACTICALS/ASSIGNBMENTS/TUTORIALS

Sr. No.	Unit	Practical/Assignment	Approx. Hours	Relevant COS
1	1	To Study of N Channel JFET drain and transfer characteristics.	2	1 & 2
2	1	Study of N channel JFET small signal amplifier.	2	1 & 2
3	1	Study of JFET used as a shunt and series switch.	2	1 & 3
4	2	To study transfer and output characteristics of n-channel Metal Oxide Semiconductor Field Effect Transistor	2	1 & 2
5	6	To Study of RC Phase shift Oscillator circuits.	2	2 & 3
6	6	To Study of Wien Bridge Oscillator circuits.	2	2 & 3
7	6	To Study of Hartley or Colpitt Oscillator circuit.	2	2 & 3
8	4	To plot frequency response of any one of the following IC power amplifiers: LM 380, LM 386, TBA810.	2	3
9	4	To Observe and plot waveforms of Push pull amplifier	2	3

* Minimum 7 and maximum 8 practicals/experiment sessions to be included in a course in a term

VI. ASSESMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)
- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)
- End Term Exam
- Practicals

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	1	1	1	1	2	3	3	2	1
CO2	2	2	2	2	1	1	1	1	2	2
CO3	1	3	2	2	1	2	2	2	2	3

Legends :- High:03, Medium:02, Low:01, No Mapping: -

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFRENCE BOOKS/WEBSITES

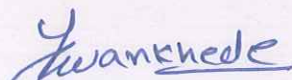| Sr. No	Author	Title	Publisher
1	Boylestead & Nashelsky	Electronic devices and Circuits Theory"	9th edition, PHI.
2	V.K .Mehta	Principles of Electronics	S.Chand Publication
3	Millman & Halkies	Electronic Device and Circuits	2nd Edition, Tata McGraw Hill.
4	David Bell	Electrical and Electronics Materials	Oxford University Press
5	S. Salivahanan, N Suresh Kumar	Electronic Devices and Circuits	3rd Edition, Mc Graw Hill Education
6	Bhargava, Kulshrestha and Gupta	Basic Electronics and Linear Circuits	4th Edition, Tata McGraw - Hill Publishing Company Limited

IX. LEARNING WEBSITES & PORTALS

Sr.No	Link /Portal	Description
1	https://archive.nptel.ac.in/courses/115/102/115102014/	Basics of FET and MOSFET
2	https://www.iitg.ac.in/apvajpeyi/ph218/Lec-19.pdf	Power Ampliers
3	https://archive.nptel.ac.in/courses/108/102/108102095/	FET Biasing

Curriculum Coordinator   **Head of the Department**   **Dean Diploma**

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: DATA STRUCTURES AND ALGORITHMS
COURSE CODE	: 233EX45

I. TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME						ASSESSMENT SCHEME											
CL	TL	LL	Self-learning	CR	Total IKS Hrs for Sem	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	-	2.5	-	3	30	70	100	40	25	10	25	10	-	-	150

II. RATIONALE

To teach students basic facts, concepts and principles of Data structures as a tool for data handling in engineering problems. To make students well versed in the prerequisites for further studies in electronics engineering.
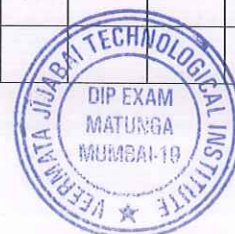
III. COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning

- CO1- To understand the fundamentals of Data structures and algorithms.
- CO2 -Apply and analyze concepts of data structures on real world applications.
- CO3 – Design and implement various Data structures.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I								
Unit & Sub-Unit		Topics/Sub-topics	Hrs	Marks	CO	R Level	U Level	A Level
1		**Introduction to Data Structures**	6	6				

	1.1	Introduction to Data Structures	1			1,2	60%	20%	20%
	1.2	Types of Data Structures – Linear and Nonlinear, Operations on Data Structures, Concept of array, Static arrays vs Dynamic Arrays, structures.	3			1,2	20%	50%	30%
	1.3	Introduction to Analysis of Algorithms	1			1,2	20%	50%	30%
	1.4	Characteristics of algorithms	1			1,2	20%	40%	40%
2		**Stack and Queues**	9	15					
	2.1	Introduction to stacks	1			1,2	20%	60%	20%
	2.2	Basic Stack Operations	2			1,2	20%	60%	20%
	2.3	Representation of a Stack using Array	1			1,2	20%	60%	20%
	2.4	Applications of stack- Infix to Postfix Conversion and Postfix Evaluation	2			1,2,3	20%	60%	20%
	2.5	Introduction to Queue.	1			1,2,3	30%	30%	40%
	2.6	Operations on Queue	2			1,2,3	20%	20%	60%
3		**Linked List**	9	14					
	3.1	Introduction, Representation of Linked List, Linked List v/s Array, Types of Linked List - Singly Linked List (SLL),Double Linked list. Operations on Singly Linked list.	4			1,2,3	20%	60%	20%
	3.2	Implementation of Stack and Queue using Singly Linked List.	4			1,2,3	20%	60%	20%
	3.3	Applications of single linked list and double linked list.	1			1,2	20%	20%	60%

SECTION-II									
Unit & Sub-Unit		Topics/Sub-topics							
4		**Trees**	10	15					
	4.1	Introduction, Tree Terminologies	1			1,2	20%	60%	20%
	4.2	Binary Tree, Types of Binary Tree	1			1,2	20%	60%	20%
	4.3	Representation of Binary Trees, Binary Tree Traversals, Binary Search Tree Operations on Binary Search Tree,	6			1,2	20%	50%	30%
	4.4	Applications of Binary Tree – Expression Tree, Huffman Encoding.	2			1,2,3	20%	20%	60%
5		**Graphs**	6	8					
	5.1	Introduction, Graph Terminologies, Representation of graph (Adjacency matrix and adjacency list)	2			1,2	20%	60%	20%
	5.2	Graph Traversals – Depth First Search (DFS) and Breadth First Search (BFS	4			1,2,3	20%	60%	20%
6		Introduction to Sorting and Searching	8	12					
	6.1	Introduction to Searching: Linear search, Binary search.	2			1,2	20%	60%	20%
	6.2	Sorting: Internal VS. External Sorting, Sorting	6			1,2,3	20%	60%	20%

		Techniques: Bubble, Insertion, selection, Quick Sort, Merge Sort techniques.						
	6.3	Basics of Hashing Techniques, Different Hash functions, Linear Collision and resolution technique.	2		1	20%	60%	20%
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).								

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage.

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Unit	Practical/Assignment	Approx. Hours	Relevant COS
1	1	Implement Stack ADT using array	2	1,2,3
2	2	Convert an Infix expression to Postfix expression using stack ADT	2	1,2,3
3	2	Evaluate Postfix Expression using Stack ADT	2	1,2,3
4	2	Implement Linear Queue ADT using array	2	1,2,3
5	2	Implement Circular Queue ADT using array	2	1,2,3
6	3	Implement Singly Linked List ADT	2	1,2,3
7	3	Implement Doubly Linked List ADT	2	1,2,3
8	3	Implement Stack ADT using Linked List	2	1,2,3
9	4	Implement Binary Search Tree ADT using Linked List	2	1,2,3
10	5	Implement Depth First Search and Breadth First Search Graph Traversal technique	2	1,2,3
11	5	Implement searching algorithms -Linear search, Binary search	2	1,2,3
12	6	Implement bubble sorting algorithm.	2	1,2,3
13	6	Implement merge sort algorithm.	2	1,2,3
14	6	Implement Quick sort algorithm.	2	1,2,3
* Minimum 7 and maximum 8 practical/experiment sessions to be included in a course in a term				

VI. ASSESSMENTS METHODOLOGIES /TOOLS

Assignments

- Develop codes for relevant topics suggested by teacher.
- Solve an assignment on any relevant topic given by teacher.

Micro Project (if any)

- Develop some simple real world application projects.

VII. ASSESSMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)
- Experiments performance and journal completion.
- Class Test
- Self-learning
- Term Work
- Seminar/Presentation

Summative Assessment (Assessment of Learning)
- End Term Exam
- Micro-project.
- Assignments.

VIII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2	PSO- 3
CO1	1	-	-	3	-	1	2	1	-	2
CO2	1	2	1	3	1	1	2	1	-	1
CO3	1	2	2	3	-	1	2	-	1	1

Legends :- High:03, Medium:02,Low:01, No Mapping: -

IX. SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFRENCE BOOKS/WEBSITES

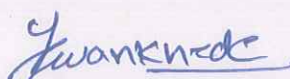| No	Author	Title	Publisher
1	Balagurusamy	Data Structure Using C	McGraw-Hill publication
2	Rajesh K Shukla	Data Structures using C and C++	Wiley - India
3	Reema Thareja	Data Structures using C	Oxford

X.   LEARNING WEBSITES & PORTALS

SR NO	LINK /PORTAL	DESCRIPTION
1	http://www.leetcode.com/	Data Structures
2	http://www.hackerrank.com/	Data Structures
3	http://www.cs.usfca.edu/~galles/visualization/Algorithms.html	Data Structures
4	www.codechef.com	Data Structures

Curriculum Coordinator   **Head of the Department**   **Dean Diploma**

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: ELECTRONIC WORKSHOP-II
COURSE CODE	: 233EX46

I. TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME						ASSESSMENT SCHEME											
CL	TL	LL	Self-learning	CR	Total IKS Hrs for Sem	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
1	-	2	2	1.5	-	-	-	-	-	-	25	10	-	-	25	10	50

II. RATIONALE

To teach students facts, concepts and principles of basic electronic devices used for various applications as a tool to analyze and design electronic circuits. To make students well versed in the prerequisites for further studies in Electronics engineering.

III. COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning
- **CO1-** Read and comprehend the function of basic electronics components and compatible Arduino Boards.
- **CO2-** Understand and utilized the simulation tools and PCB designing techniques to model electronic circuits.
- **CO3-** Apply knowledge to program / test and interface with Arduino Boards

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I								
Unit & Sub-Unit		Topics/Sub-topics	Hrs	Marks	CO	R Level	U Level	A Level
1		**Introduction to electronic components**	03			20%	50%	30%
	1.1	Need of Hardware and Software			1	20%	50%	30%
	1.2	Study of electronic components like Diode, IC741, BJT, Microcontroller, Microprocessor, Sensors			1	20%	50%	30%

Unit	Sub-Unit	Topics/Sub-topics	Hrs		Levels	R	U	A
		and Integrated Circuits						
	1.3	Role of software in hardware operations			1,2	20%	50%	30%
2		**Simulation Softwares**	05			10%	70%	20%
	2.1	Introduction to Electronic Design Automation tools like e-sim, Multisim and others.			2	10%	70%	20%
	2.2	Installation and operation of tools			2	10%	70%	20%
	2.3	Simulation and circuit analysis of applications.			2,3	10%	70%	20%

SECTION-II								
Unit & Sub-Unit		Topics/Sub-topics						
3		**PCB Designing**	04			10%	70%	20%
	3.1	Overview of PCB and its role in electronics, Types of PCB.			1	10%	70%	20%
	3.2	Schematic Design and PCB Layout			1,2	10%	70%	20%
	3.3	Soldering Techniques and Component Placement			2	10%	70%	20%
	3.4	Debugging and Testing			2,3	10%	70%	20%
4		**Understanding Arduino Boards**	04			10%	60%	30%
	4.1	Introduction to Arduino Boards			1	10%	60%	30%
	4.2	Overview of operating system required for Arduino Boards and IDE software			1,2	10%	60%	30%
	4.3	Architectures and Specifications			1	10%	60%	30%
	4.4	Interfacing of various components with Arduino			3	10%	60%	30%

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxanomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

V. LIST OF PRACTICALS/ASSIGNMENTS/TUTORIALS

Sr. No.	Unit	Practical/Assignment	Approx. Hours	Relevant COS
1	1,2	To implement Half Wave Rectifier circuit using EDA tool.	2	2
2	2	Design and test the output of half adder and full adder circuit using EDA tool.	2	2
3	2	To implement Full Wave Bridge type Rectifier circuit using EDA tool.	2	2
4	2	Design and test the output of MUX and DEMUX circuit using EDA tool.	2	2
5	2	Simulate the inverting and non-inverting amplifier using IC741.	2	2
6	3	To implement blinking of an LED using Arduino.	2	2 & 3
7	4	PCB designing for anyone circuit.	4	2 & 3
8	3	To Design LED flasher circuits using Arduino.	4	2 & 3
9	4	Interfacing of Raspberry Pi with Basic Sensors.	4	2 & 3
10	3,4	Interfacing of matrix keypad using Arduino.	4	2 & 3

* Minimum 7 and maximum 8 practicals/experiment sessions to be included in a course in a term

VI. ASSESMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)
- Term Work
- Self-Learning
- Seminar/Presentation

Suggested Self Learning Assignments/Mini Project
- Practicals
- Mini Project
  - Design a Traffic Light Controller using Arduino.
  - Arduino Based Real-Time Digital Clock With Temperature Sensor
  - Arduino Based Window Alarm Annuciator
  - Temperature-Based Fan Speed Control Monitoring Using Arduino
- Assigment
  - Prepare report on mini project

VII. SUGGESTED COS-POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)				
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5
CO1	3	1	1	1	1	2	2	2	1	2	-	-
CO2	3	2	1	1	1	2	1	2	2	1	-	-
CO3	2	3	2	1	1	3	1	3	3	3	-	-

Legends :- High:03, Medium:02,Low:01, No Mapping: - 0

VIII. SUGGESTED LEARNING MATERIALS TEXTBOOKS/ REFRENCE BOOKS/ WEBSITES

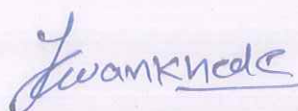| Sr. No	Author	Title	Publisher
1	Electronics For You Group	Electronic Project, Volume 1 to Volume27, Edition onwards	BPB Publications.
2	Rajesh S., Anita G. Lovi G., Bupendra S., Mahendra S.	Internet of Things with Raspberry Pi and Arduino, 1st Edition	CRC Press.
3	Michael H Tooley Kreysizg, Ervin	Practical Digital Electronics Handbook,1st Edition	BPB Publications.
4	Jones, Thomas H	Electronic Components Handbook	Reston Publishing, US, ISBN: 978-0879092221

IX. LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	
1	https://esim.fossee.in/resource/book/esimusermanual.pdf	PCB Designing
2	https://www.circuitbasics.com/introduction-to-arduino/	Arduino
3	https://onlinecourses.swayam2.ac.in/aic20_sp59/preview	ESim EDA Tool

Curriculum Coordinator   **Head of the Department**   **Dean Diploma**

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: INTRODUCTION TO IOT (ONLINE)
COURSE CODE	: 233EX47

I. TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME							ASSESSMENT SCHEME											
CL	TL	LL	Self-learning	CR	Total IKS Hrs for Sem	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
1	-	2	3	3	-	-	-	-	-	-	25	10	25#	10	25	10	75

II. RATIONALE

To teach students basic facts, concepts and principles of Arduino and Raspberry Pi as tool to analyze electronics engineering problems.

III. COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning

- **CO1-** Understand the fundamentals of Arduino and Raspberry Pi.
- **CO2-** Apply the knowledge of interfacing different devices to Arduino Board and Raspberry Pi to accomplish a given task.
- **CO3-** CO3-Design Arduino and Raspberry pi based projects for a given problem.

IV. COURSE CONTENTS WITH SPECIFICATION TABLE

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hrs	Marks	CO	R Level	U Level	A Level
1	**Introduction to Arduino board and Arduino Programming**	3					
1.1	Basics of Microcontrollers.			1	60%	20%	20%

		Topics/Sub-topics				R	U	A
	1.2	Arduino board and their features.			1	60%	40%	10%
	1.3	Arduino architecture.			1,2,3	20%	50%	30%
	1.4	Setting up of Arduino IDE.			1,2	20%	40%	40%
	1.5	Basics of programming languages, variables, data types, operators, conditional statements and loops.			2	20%	50%	30%
2		**Sensors and actuators and communication**	5					
	2.1	Basic principles of sensors and working, Interfacing Arduino with sensors (example -temperature, light, sound and pressure sensors, etc.)			1,2,3	20%	60%	20%
	2.2	Serial Communication with other devices, Introduction to I2C and SPI protocols.			1,2	20%	60%	20%
	2.3	Wireless communication with Bluetooth and Wi-fi modules.			1,2,3	20%	60%	20%

SECTION-II								
Unit & Sub-Unit		**Topics/Sub-topics**						
3		**Introduction to Raspberry PI**	3					
	3.1	Introduction to Raspberry Pi, its evolution &applications. Architecture of Raspberry Pi.			1	40%	40%	20%
	3.2	Setting up of Raspberry Pi OS.			1,2,3	20%	60%	20%
	3.3	Basic Linux commands and shell scripting			2,3	20%	60%	80%
	3.4	Introduction to GPIO pins and their functionalities.			2,3	20%	60%	80%
4		**Raspberry Pi programming**	5					
	4.1	Basics of programming required for Raspberry Pi.			1	40%	40%	20%
	4.2	GPIO Programming with Raspberry Pi, GPIO library.			1,2,3	20%	60%	20%
	4.3	Interfacing of Raspberry Pi with sensors and actuators.			1,2,3	20%	60%	20%

Legends: R- Remember, U – Understand, A – Apply and above levels (Bloom's Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

V. LIST OF PRACTICALS/ASSIGNBMENTS/TUTORIALS

Sr. No.	Unit	Practical/Assignment	Approx. Hours	Relevant COS
1	1	Write a program to make an LED connected to an Arduino board blink on and off at regular intervals.	2	1,2,3
2	2	Button-controlled LED: Use a push-button switch to control the state of an LED (turn it on when the button is pressed and off when released).	2	1,2,3
3	2	Potentiometer-controlled LED brightness: Use a potentiometer to control the brightness of an LED.	2	1,2,3
4	2	Temperature sensor: Interface a temperature sensor (such as LM35) with Arduino to measure ambient temperature and display it on a serial monitor	2	1,2,3
5	2	Sound sensor: Use a sound sensor module to detect sound levels and trigger an LED or buzzer.	2	1,2,3
6	3	Light intensity measurement: Use a light-dependent resistor (LDR) to measure ambient light intensity and display it on an LCD.	2	1,2,3
7	4	LED control using GPIO: Blink an LED connected to Raspberry Pi's GPIO pins using Python programming.	2	1,2,3
8	4	Temperature and humidity sensor: Interface a DHT11 or DHT22 sensor with Raspberry Pi to measure temperature and humidity and display the values on the terminal.	2	1,2,3
9	4	Voice-controlled LED: Use a USB microphone with Raspberry Pi to control the state of an LED using voice commands	2	1,2,3
10	4	Motion detection with camera: Use Raspberry Pi Camera Module to detect motion and trigger an event (e.g., capturing images or sending notifications	2	1,2,3
11	4	Weather station: Collect temperature, humidity, and pressure data using sensors connected to Raspberry Pi and display the	2	1,2,3
12	4	Internet radio player: Build a simple internet radio player using Raspberry Pi and play streaming audio from online radio stations	2	1,2,3
* Minimum 8 and maximum 10 practicals/experiment sessions to be included in a course in a term				

VI. ASSESMENTS METHODOLOGIES /TOOLS

Formative assessment (Assessment for Learning)
- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)
- End Term Exam

- Practicals

VII.   SUGGESTED COS-POS MATRIX FORM

| Course Outcomes (COs) | Programme Outcomes (POs) | | | | | | | | | |
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	-	-	3	-	-	3	3	1	2
CO2	3	2	1	3	1	1	3	3	3	2
CO3	3	2	3	3	-	1	3	3	2	2

Legends :- High:03, Medium:02,Low:01, No Mapping: - 0
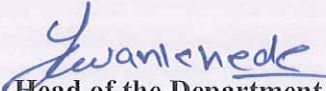
VIII.   SUGGESTED LEARNING MATERIALS TEXTBOOKS/REFRENCE BOOKS/WEBSITES

Sr. No	Author	Title	Publisher
1	SimonMonk	Hacking Electronic :Learning Arduino and Raspberry pi.	McGraw-Hill Education TAB; 2nd edition (September 28, 2017)
2	SimonMonk	"Raspberry PI Cookbook Software and Hardware Problems and Solutions	O'Reilly 2nd Edition
3	Donald Norris	"Raspberry Pi Electronic Projects for Evil Genius"	McGraw-Hill Education TAB; 1 edition (May 20, 2016)

IX. LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://projects.raspberrypi.org/	Raspberry Pi Project
2	https://www.arduino.cc/	Basics of Arduino and Programming
3	https://www.raspberrypi.org/	Raspberry Pi Basics and Programming

Curriculum Coordinator   **Head of the Department**   **Dean Diploma**

BOS VJTI Approval Dt. 10/07/2024

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRONICS ENGINEERING
PROGRAMME CODE	: DELNE
SEMESTER	: FOURTH
COURSE TITLE	: DEVELOPMENT OF LIFE SKILLS AND PROFESSIONAL PRACTICE
COURSE CODE	: 233EX48

I.   TEACHING AND EXAMINATION SCHEME

TEACHING SCHEME						ASSESSMENT SCHEME											
CL	TL	LL	Self-learning	CR	Total IKS Hrs for Sem	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
							Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	25	10	25

II.   RATIONAL

To cultivate student's proficiency in electronics as a foundational skillset for analyzing engineering challenges and preparing them for advanced studies in electronics engineering, thereby fostering the development of their professional practice in the field.

III.   COURSE OUTCOMES (COS)

Students will be able to achieve the following COS on completion of course based learning

- CO1- Acquire information from different sources and take advantage of e-learning.
- CO2- Students should able to develop their interpersonal skills.
- CO3- To improve ownership of professional growth and learning.
- CO4- To conduct and manage various events.
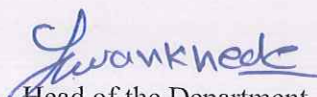
IV.   COURSE CONTENTS WITH SPECIFICATION TABLE

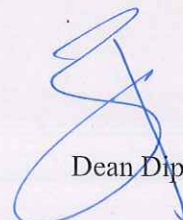| Unit & Sub-Unit	Topics/Sub-topics
1	**Quiz Competitions**

	1.1	Form committee, Decide the policy plan Communicate to guest, Financial assistance from college, Summary Report writing
2		**Departmental Newspaper**
	2.1	Form committee, Decide the different groups for news section, Financial assistance from college
3		**Departmental Magazine**
	3.1	Form committee, Decide the policy plan, Communicate to guest.
	3.2	**Industrial Visit**
	3.3	Form committee, Decide the policy plan Communicate to Industry, Financial assistance from college, Summary Report writing

Unit & Sub-Unit		Topics/Sub-topics
4		**Presentation Techniques**
	4.1	Importance of presentation, Components of effective presentation. (Body language, voice culture, rehearsal etc.), Preparing for presentation, Use of audio/video aids. (Power point etc.), Performing presentation (Seminar, paper presentation etc.)
5		**Managerial Skills**
	5.1	Resume writing, Interview Techniques
6		**Self-Development**
	6.1	Goal setting and its Importance, Characteristics of goal setting, Time Management.

Curriculum Coordinator   Head of the Department   Dean Diploma

BOS VJTI Approval Dt. 10/07/2024