Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Mr. D. M. Panhalkar**

Programme: **B.Sc. III** Semester-V

Subject: Electronics Course Title: **Paper -*IX*- Linear Integrated circuits**

Month : July 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 1: Linear IC's and Amplifier** GROUP A :(***LIC***) 1. Adder and Subtractor 2. Integrator and Differentiator. 3. Schmitt Trigger using op-amp. 4. IC 555 as variable duty cycle. 5. Function generator using IC 8038 **Project work**	Transistor dc amplifier, Differential amplifier, Emitter coupled differential amplifier with its operation, characteristics and parameters(I/O impedances, common mode and differential mode gain, CMRR. Introduction to op-amp
12	80	92		
Month: August 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 2:** Op-amp as Analog System Building Blocks. GROUP A:**(PLC)** 6. PLC Simulator and implementing Boolean function. 7. Sequential logic RS -FF,JK-FF,T-FF,D-FF 8. Study of PLC timers and Counter 9. Programming for Automatic parking Gate **10.** Study and implementation of proportional controller using op-amp	Virtual ground concept, Op-amp as inverting and non- inverting amplifier, summing amplifier (adder and subtractor), V to I and I to V converter, voltage follower, bridge amplifier, Differentiator and integrator, log and antilog amplifier. Op-amp as comparator, regenerative comparator, Peak detector, clipping and clamping circuits.
12	80	92		
Month : September 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 3: Precision Rectifier and Active filters** GROUP B: (Communication) 1. AM modulation and Demodulator. 2. FM modulation and Demodulator 3. Frequency Shift Keying. 4. Pulse Amplitude Modulation 5. ASK Modulator. **Project work**	Op-amp as precision AC/DC converter, precision rectifier. Advantage of active filters over passive filters. Study of filter response (Butterworth, Chebyshev.) Different types of active filters
12	80	92		
Month : October 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 4: Phase Locked –Loops (PLL)** GROUP B: (Communication) 6. Study of Composite Video Signal 7. RF tuned amplifier 8. Pulse width modulation 9. PSK Modulator **Project work**	Block diagram of PLL with functioning of each block, calculation of capture range and lock range frequencies, application of PLL
12	80	92		

Mr. D. M. Panhalkar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416 003

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Head

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Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Mr. D. M. Panhalkar**

Programme: **B.Sc. III** Semester- VI

Subject: Electronics Course Title: **Paper (XIII)- *Industrial Processes control and PLC programming***

Month : December 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 1: *Introduction to control system***	Basic elements of control system, open loop control system, closed loop control system,
12	80	92	GROUP C: (8051 µC) 1. Stepper / DC motor interfacing 2. Timer programming mode 1 & 2 3. Arithmetic & logical operations. 4. LED ,Thumbwheel switch and 7-segment display interfacing 5. DAC0808/ADC0804 interfacing	control system terminology, manually controlled closed loop systems, automatic controlled closed loop systems, comparison closed-loop system and open-loop control, PI controller, PD controller and PID control
Month: January 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 2: **Control System**	Opamp as a zero crossing detector, non-inverting comparator, inverting comparator, Two position
12	80	92	**GROUP C**: (PIC µC) 6. Use of MPLAB simulator: 7. I/O port programming 8. PIC Programming in timer1 9. Serial communication 10 Programming of PIC on chip ADC **Project work**	control using opamp, proportional controller, integral controller using Opamp ,derivative controller, PI controller, PID controller
Month : February 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 3: *Introduction to PLC***	Programmable logic controller (PLC) basics:block diagram of PLC, input/output modules, power supplies, isolators, features like scan time, system scale, user interface. Modular PLC and Redundant PLC and Applications, communication protocols: RS485, Profibus Modbus.
12	80	92	**Practicals:** GROUP D: (Instrumentation) 1. Study of thermocouple (594) 2. Study of characteristics of RTD 3. Instrumentation Amp (LM324) 4. Measurement using Strain Gauge and Bridge Amplifier. 5. Precision Rectifier Op-Amp **Project work**	
Month : March 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: **Ladder Programming basics**	**Basic components:** fuse, pushbutton, selector switches, limit switches, indicators, relay, time delay relays functions and symbols. General PLC programming procedures, programming on-off inputs/ outputs. Auxiliary commands and functions: PLC Basic Functions: Register basics, timer functions, counter functions.
12	80	92	**Practicals:** GROUP D: (Power Electronics) 6. Study of AC / DC Timer 7. SCR firing by UJT. 8. AC Voltage controller 9. Phase Shift control of SCR 10. ON/OFF Temp. controller **11.** DC Motor Control	

Mr. D. M. Panhalkar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR

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Head
Department of Electronics
Vivekanand College, Kolhapur

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Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Mr. P. R. Bagade**

Programme: **B.Sc. II** Semester- III

Subject: Electronics Course Title: **DSC-1005C Section-I Electronics Communication**

<table>
<tr><td colspan="3">Month : July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 1:Electronic Communication
Practicals Group A:
1. To study Amplitude Modulator and demodulator
2. To study envelope detector for demodulation of AM signal
3. To study FM modulator
4. Time Division Multiplexing
5. To study Pulse Amplitude Modulation</td><td rowspan="2">Introduction to communication-meaning and types, Block diagram of an electronic communication system. Brief idea of frequency allocation for radio communication system in India (TRAI). Electromagnetic communication spectrum, band designations and usage. Channels and base band signals, concept of Noise, signal-to-noise (S/N) ratio.</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 2: Analog Modulation-Demodulation
Practicals Group A:
6. To study ASK Modulator
7. To study PSK Modulator
8. To study FSK Modulator
9. To study Pulse Width Modulation</td><td rowspan="2">Need for modulation, Amplitude Modulation (AM) modulation index and frequency spectrum. Generation of AM (using Transistor), Concept of DSB, SSB generation. Amplitude Demodulation , Phase Modulation (PM)(concept only),</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
<tr><td colspan="3">Month : September 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 2: Analog Modulation-Demodulation
Practicals Group B (8085):
1. Addition and subtraction of numbers- direct addressing mode
2. Addition and subtraction of numbers- indirect addressing mode
3. Multiplication by repeated addition.
4. Division by repeated subtraction.</td><td rowspan="2">Frequency Modulation (FM), modulation index and frequency spectrum, equivalence between FM and AM. Generation of FM using VCO, FM detector (Slope detector), and Study of Super heterodyne radio receiver</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
<tr><td colspan="3">Month : October 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 3: Satellite communication
Practicals Group B (8085):
5. Addition of 16-bit Numbers.
6. Use of CALL and RETURN instruction.
7. Block data handling.
8. Other programs (e.g. Parity Check, using interrupts, etc.).</td><td rowspan="2">Introduction, Need, Geosynchronous satellite orbits, geostationary satellite, advantages of geostationary satellite. Satellite visibility, transponders (C- Band), path loss, ground station, simplified block diagram of earth station. Uplink and down link.</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
</table>

Mr. P. R. Bagade

Mr. D. M. Panhalkar

Head

Department of Electronics

Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Mr. P. R. Bagade**

Programme: **B.Sc. II** Semester- IV

Subject: Electronics Course Title: **DSC-1005D Section-I Advance Communication**

<table>
<tr><td colspan="3">Month : January 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 1: Analog Pulse Modulation
Practical's Group C (8051) :
1. Arithmetic operation using 8051
2. Logical operation's using 8051.
3. Study of timers of 8051 (mode 1& 2)
4. Study of interfacing of LED to 8051
5. Study of interfacing of LED array.
6. Study of rotate instruction
7. Interfacing of 7-segment display.</td><td rowspan="2">Channel capacity, Sampling theorem, Basic Principles-PAM, PWM, PPM, modulation and detection technique for PAM only,</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
<tr><td colspan="3">Month: February 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 2: Digital Pulse Modulation
Practical's Group C (8051):
8. Study of interfacing multiplexed 7-segment display.
9. Study of interfacing of stepper motor.
10. Study of interfacing of D.C motor.
Practical's Group D
(Skill Enhancement Course):
1. Designing of Printed circuit board (PCB) using Software
2. Development of PCB
3. Soldering techniques: Assemble electronic circuit
4. Temperature Controller using 741</td><td rowspan="2">Need for digital transmission, Pulse Code Modulation, Sampling, Quantization and Encoding. Concept of Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), and Phase Shift Keying (BPSK and QPSK).</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
<tr><td colspan="3">Month : March 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 3: Mobile Telephony System
Practical's Group D (SEC):
5. Designing of Variable Power Supply using LM 317.
6. Build Regulated Power Supply using IC 7805
7. Build Dual Power Supply using IC 7809 and IC 7909
8. Assemble Electric Board with switches, sockets and Miniature circuit Breaker (MCB)
9. Build Lighting system using LED, Solar Panel and Chargeable Battery</td><td rowspan="2">Basic concept of mobile communication, frequency bands used in mobile communication, concept of cell sectoring and cell splitting, Hand-off process, SIM number, IMEI number, need for data encryption, architecture (block diagram) of mobile communication network, idea of GSM, CDMA, TDMA and FDMA technologies, GPS navigation system.</td></tr>
<tr><td>12</td><td>32</td><td>44</td></tr>
</table>

Mr. P. R. Bagade

Head
Department of Electronics
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Mr. D. M. Panhalkar
Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Mr. P. R. Bagade**

Programme: **B.Sc. III** Semester-V

Subject: Electronics Course Title: **Paper-X Communication Systems -I**

<table>
<tr><td colspan="3">Month : July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 1: Communication Systems
GROUP A :(LIC: Op-Amp Based)
1. Adder and Subtractor
2. Integrator and Differentiator.
3. Schmitt Trigger using op-amp.
4. IC 555 as variable duty cycle.
5. Function generator using IC 8038
Project work</td><td rowspan="2">Introduction and block diagram, Types of communication systems, Electromagnetic spectrum, concept of bandwidth. Noise in communication: External and internal noise, S/N ratio, noise figure and noise temperature</td></tr>
<tr><td>12</td><td>40</td><td>52</td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 2:
Modulation and Demodulation
GROUP A:(PLC)
6. PLC Simulator and implementing Boolean function.
7. Sequential logic RS -FF,JK-FF,T-FF,D-FF
8. Study of PLC timers and counters
9. Programming for Automatic parking Gate
10.Study and implementation of proportional controller using op-amp.</td><td rowspan="2">Need of modulation. Amplitude modulation – Principle, mathematical expression, modulation index, frequency spectrum, power distribution. Concepts of DSB, SSB & VSB. DSB generation using FET Balanced Modulator. SSB generation using phase shift method. FM: Principle, mathematical expression, modulation index, side bands.
Demodulation - Diode detector, Frequency demodulation (Foster Seely Discriminator)</td></tr>
<tr><td>12</td><td>40</td><td>52</td></tr>
<tr><td colspan="3">Month : September 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 3: Antenna and Radio Wave Propagation
GROUP B: (Communication)
1. AM Modulator and Demodulator.
2. FM Modulator and Demodulator
3. Frequency Shift Keying.
4. Frequency Shift Keying.
5. Pulse Amplitude Modulation
6. ASK Modulator. Project work</td><td rowspan="2">Antenna Parameters
Types of antennas- half wave dipole, Yagi-uda and dish antennas.
Radio wave propagation: Ground wave, Sky wave and Space wave propagation.</td></tr>
<tr><td>12</td><td>40</td><td>52</td></tr>
<tr><td colspan="3">Month : October 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 4: Radio Receivers & Television
GROUP B: (Antenna and Power Ele)
7. Study of Composite Video Signal
8. RF tuned amplifier
9. Pulse width modulation
10. PSK Modulator
11. Study of DTH
Project work</td><td rowspan="2">AM Superhet Receiver
FM Receiver – block diagram and working of each block.
Television: Scanning, Picture formation, picture tube, picture qualities, TV Broadcasting: Composite video signal, horizontal and vertical sync pulses. Channel bandwidth, VSB transmission.</td></tr>
<tr><td>12</td><td>40</td><td>52</td></tr>
</table>

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Department of Electronics
Academic Year: 2019-20
Annual Teaching Plan

Name of the teacher: **Mr. P. R. Bagade**
Programme: B.Sc. III Semester- VI
Subject: Electronics Course Title: P **aper-XIV– Communication Systems -II**

Month : January 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 1: Telephone Communication System** GROUP C: (8051 µC) 1. Stepper / DC motor interfacing 2. Timer programming (mode 1 & 2) 3. Arithmetic and logical operations. 5. LED and Relay/Thumbwheel switch and seven segment display interfacing 4. DAC0808/ADC0804 interfacing	**Telephony Principle**, telephone hand-set (instrument), local loop, need of telephone exchange, Types of exchanges, Electronic exchange – block diagram and working. PSTN Pulse and DTMF dialling, Different tones in telephone, EPABX Concepts of value added services
12	40	52		
Month: February 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 2: **Modern Communication Systems** **GROUP C**: (PIC µC) 5. Use of MPLAB simulator 6. I/O port programming 7. PIC Programming in timer 1 16-bit mode 8. Serial communication 9. Programming of PIC on chip ADC	**FAX** – Principle, block diagram and working of each block. **Video Conferencing Technique** – Block diagram and working Concept of ISDN interface **Optical Fiber Communication** Principle, splices & connectors, transmitter, receiver Block diagram of OFC and its working **Satellite Communication**
12	40	52		
Month : March 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Unit 3: Digital Communication** **Practicals:** GROUP D: (Instrumentation) 1. Study of thermocouple (594/595) 2. Study of characteristics of RTD 3. Instrumentation Amplifier(LM324) 4. Measurement using Strain Gauge and Bridge Amplifier. 5. Precision Rectifier using Op-Amp **Project work**	**Pulse Modulation** – PAM, PCM Block diagram and working of delta modulation **MODEM** – Concept of ASK, FSK, BPSK, QPSK, Block diagram of MODEM using FSK. **Multiplexing Techniques -** TDM, FDM , CDM
12	40	52		
Month : April 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: **Wireless Communication** **Practicals:** GROUP D: (Power Electronics) 6. Study of AC / DC Timer 7. SCR firing by UJT. 8. AC Voltage controller 9. Phase Shift control of SCR 10.ON/OFF Temperature controller **11.**DC Motor Control **Project work**	Introduction, Need of wireless communication systems. Mobile communication, Cellular concept, Working of GSM, Hand over, Introduction to GPRS. Introduction to RFID, Zigbee, Bluetooth and Wi-Fi (Comparison based on range, data rate, frequency, Power)
12	40	52		

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Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the Teacher: **Mr. N. P. Mote**

Programme: B.Sc. II Semester- III and IV

Subject: Electronics

Course Title: **Practicals**

Month : July 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Practicals:** **Group A :** 1. Amplitude Modulator using Transistor 2. To study FM - Generator 3. To study Pulse Amplitude Modulation (PAM)	
0	48	48		
Month: August 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Practicals: **Group A :** 4. To study Pulse Width Modulation (PWM) 5. To study Pulse Position Modulation (PPM) 6. To study ASK modulator 7. To study PSK modulator 8. To study FSK modulator	
0	48	48		
Month : September 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Practicals:** **Group B :** 1. Addition and subtraction of numbers using direct addressing mode 2. Addition and subtraction of numbers using indirect addressing mode 3. Multiplication by repeated addition. 4. Division by repeated subtraction	
0	48	48		
Month : October 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**Practicals:** 1. Arithmetic operation using 8051 2. Logical operations using 8051. 3. Study of timers of 8051 in mode 1 and mode 4.Study of interfacing of LED to 8051 microcontroller. 5. Study of interfacing of LED array.	
0	48	48		

Mr N. P. Mote

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Academic Year: 2019-20

Annual Teaching Plan

Name of the Teacher: **Mr. N. P. Mote**

Programme: B.Sc. II Semester- III

Subject: Electronics Course Title: DSC -1005 C Electronics Communication and Microprocessor 8085

Month: July 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1) Microcomputer Organization:	Basic components of microcomputer (CPU. Program memory, Data memory, input and output ports, idea of RAM (SDRAM,DRAM) Types of ROM Memory Organization & addressing, Memory Interfacing, Memory Map.
12	00	12		
Month : August 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	2) Architecture of 8085 Microprocessor:	Silent features of 8085.Block diagram and Pin description of 8085. Data and address bus, Registers, ALU, Stack pointer, Program counter, Flag register, Clock and reset circuits. Interrupts in 8085.Demultiplexing of AD0-AD7.Tstates, Machine cycle, Instruction cycle. Timing diagram of MOV and MVI instructions.
12	00	12		
Month: September 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	3) Instruction Set of 8085 Microprocessor :	Instruction set, classification of Instruction Set, Instruction format, Addressing modes of Instructions, Instruction set: Data transfer (including stacks), Arithmetic, logical, branch and control instructions).
12	00	12		
Month: October 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	4) Programming with 8085 Microprocessor:	Programs of Addition (8 and 16 bit), Subtraction, Multiplication, Division, Block Transfer and Exchange, Masking, ascending and descending order, Time delay generation using register and register pair, Detection of odd and even numbers.
12	00	12		

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Academic Year: 2019-20

Annual Teaching Plan

Name of the Teacher: **Mr. N. P. Mote**

Programme: B.Sc. II Semester- IV

Subject: Electronics Course Title: DSC -1005 D Advance Communication and Microcontroller 8051

Month: December 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1) Introduction to 8051 microcontroller:	Comparison between microprocessor and microcontroller. Silent feature of 8051 family. . Block diagram of 8051, Pin description of 8051microcontroller, , RAM structure of 8051, SFR's and GPR's in 8051,PSW register ,Clock and reset circuit, Memory organization ,I/O Ports.
12	00	12		
Month : January 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	2) Instruction Set of 8051:	Classification of instruction sets, Addressing modes . Instruction set of 8051: data transfer, arithmetic, Logical, Jump, call, Boolean instructions
12	00	12		
Month: February 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	3) Timers, Serial port and Interrupts(Assembly)programming of 8051:	A. Timer: Timers in 8051,Timer Registers, modes and Programming of timers B. Serial ports: Serial port of 8051, modes, Registers Serial port, Serial port programming. C. Interrupt: Interrupt in 8051, Interrupt registers, Programming with interrupt.
12	00	12		
Month: March 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	4) Interfacing of Devices with 8051:	Introduction to embedded C, comparison of C and assembly, Data typesin C, SFR accessing , I/O programming, logical operations in C. C language programming: Program to generate square wave on port pin, Interfacing of LED , Opto-coupler, Switch, Relay, DC motor and Stepper motor.
12	00	12		

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Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. G. S. Nhivekar**

Programme: B.Sc. I Semester- I

Subject: Electronics Course Title: **DSC-1005A Section-II: Digital Electronics-II**

<table>
<tr><td colspan="3">Month : June 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture UNIT – I Bipolar Junction Transistor:
Practicals:
1. To design an inverting amplifier using Op-amp (741/351)for dc voltage of given gain
2. To design inverting amplifier using Op-amp (741/351) & study its frequency response
3. a) To design non-inverting amplifier using Op-amp (741/351) & study frequency response
(b) To add two dc voltages using Op-amp in inverting and non-inverting mode
(b) To study the zero-crossing detector and comparator.</td><td rowspan="2">Introduction, Structure of BJT, Working of transistor, Transistor configurations: CB, CE and CC configurations, characteristics of transistor in CE and CB configurations, Regions of operation (active, cut off and saturation),</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
<tr><td colspan="3">Month: July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture: UNIT – I Bipolar Junction Transistor:
Practicals:
1. To design a precision Differential amplifier of given I/O specification using Op-amp.
2. To investigate the use of an op-amp as an Integrator.
3. To investigate the use of an op-amp as a Differentiator.
4. To design a Wien bridge oscillator for given frequency using an op-amp.</td><td rowspan="2">Current gains α andβ. Relations between α and β. dc load line and Q point (Operating point).</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
</table>

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Lectures	Practical	Total	Lecture: UNIT. II Unipolar Devices: Practicals:. 1. Half Adder and Full Adder. 2. Half Subtractor and Full Subtractor. 3. 4 bit binary adder and adder-subtractor using Full adder IC.	JFET: Construction, working and I-V characteristics (output and transfer), Pinchoff voltage. UJT: basic construction, working, equivalent circuit and I-V characteristics.
12	16	28		
Month : September 2019			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Lecture:UNIT III. Amplifiers: Practicals: 1. To design a seven segment decoder. 2. To design an Astable Multivibrator of given specification using IC 555 Timer. 3. To design a Monostable Multivibrator of given specification using IC 555 Timer. 4. To build Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates.	Transistor biasing and Stabilization circuits- Fixed Bias and Voltage Divider Bias, Thermal runaway, stability and stability factor S. Transistor as a two port network, h-parameter equivalent circuit. Small signal analysis of single stage CE amplifier. Input and Output impedance, Current and Voltage gains. Class A, B, AB and C Amplifiers (Comparative Study) Cascaded Amplifiers: Two stage RC Coupled Amplifier and its Frequency Response.
12	16	28		
Month : October 2020			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Lecture:UNIT IV: Feedback Amplifier and Oscillators Practicals: 1. To build JK Master-slave flip-flop using Flip-Flop ICs 2. To build a Counter using D-type/JK Flip-Flop ICs and study timing diagram. 3. To make a Shift Register (serial-in and serial-out) using IC 7495.	Concept of feedback, negative and positive feedback, advantages of negative feedback (Qualitative only). Sinusoidal Oscillators: Barkhausen criterion for sustained oscillations. Phase shift, Hartley and Colpitt's oscillator. Determination of Frequency and Condition of oscillation.
12	16	28		

Dr. G. S. Nhivkar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416

Mr.D.M.Panhalkar

Head
Department of Electronics
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. G. S. Nhivekar**

Programme: B.Sc. I Semester- II

Subject: Electronics Course Title: **DSC-1005A Section-II: Digital Integrated Circuit**

<table>
<tr><td colspan="3">Month : November 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture Unit – I Number System and Codes:
Practicals:
1.To familiarize with basic electronic components (R, C, L, diodes, transistors), Digital Multimeter, Function Generator and Oscilloscope.
2.Measurement of Amplitude, Frequency & Phase difference using Oscilloscope.
3.Verification of (a) Thevenin's theorem and (b) Norton's theorem.</td><td rowspan="2">Decimal, Binary, Octal and Hexadecimal number systems, base conversions, Representation of signed and unsigned numbers, BCD code. ASCII code, Binary, octal and hexadecimal arithmetic; addition, subtraction by 2's complement method, multiplication.</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
<tr><td colspan="3">Month: December 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture: Unit II: Logic Gates, Boolean algebra and logic analysis
Practicals:
1. Verification of Superposition Theorem.
2. Verification of the Maximum Power Transfer Theorem.
3. Study of the I-V Characteristics of (a) p-n junction Diode, and (b) Zener diode.</td><td rowspan="2">Truth Tables of OR, AND, NOT, NOR, NAND,XOR, XNOR, Universal Gates, Basic postulates and fundamental theorems of Boolean algebra, Standard representation of logic functions(SOP and POS), Minimization Techniques (K- map minimization up to 4variables for SOP).</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
<tr><td colspan="3">Month: January 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture: Unit II: Logic Gates, Boolean algebra and logic analysis</td><td rowspan="2">Arithmetic Circuits: Binary Addition. Half and Full Adder, Half and Full Subtractor. 4-bit binary Adder/Subtractor.</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
</table>

Head
Department of Electronics
Vivekanand College, Kolhapur

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR

<table>
<tr><td colspan="3"></td><td>Lecture: Unit – 3 Sequential Circuits
Practicals:.
1. Study of (a) Half wave rectifier and (b) Full wave rectifier (FWR).
2. Study the effect of (a) C-filter and (b) Zener regulator on the output of FWR.
3. Study of the I-V Characteristics of UJT and design relaxation oscillator.</td><td>SR, D, and JK Flip-Flops. Clocked (Level and Edge Triggered) Flip-Flops.</td></tr>
<tr><td colspan="3">Month : Feb 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture: Unit – 3 Sequential Circuits</td><td rowspan="2">Preset and Clear operations. Race-around conditions in JK Flip-Flop, Master-slave JK Flip-Flop, T-Flip-flop</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
<tr><td colspan="3" rowspan="2"></td><td>Unit – 4 Shift registers and Counters
Practicals:
1. Study of the output and transfer I-V characteristics of common source JFET.
2. Study of Fixed Bias and Voltage divider bias configuration for CE transistor.
3. Design of a Single Stage CE amplifier of given gain.</td><td>Serial-in-Serial-out, Serial-in-Parallel-out, Parallel-in-Serial-out and Parallel-in-Parallel-out Shift Registers (only up to 4 bits).</td></tr>
<tr><td colspan="3">Month : March 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture: Unit – 4 Shift registers and Counters
Practicals:
1. Study of the RC Phase Shift Oscillator.
2. Study the Colpitt`s oscillator/Hartley oscillator</td><td rowspan="2">Counters (4 bits): Ring Counter. Asynchronous counters, Decade Counter, Synchronous Counter</td></tr>
<tr><td>12</td><td>16</td><td>28</td></tr>
</table>

Dr. G. S. Nhivekar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR 416 003

Mr.D.M.Panhalkar

Head

Department of Electronics

Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. G. S. Nhivekar**

Programme: B.Sc. III Semester- V

Subject: Electronics Course Title: **Practical Course**

<table>
<tr><td colspan="3">Month : June 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Study of op-amp as Summing amplifier (Adder and Subtractor).
2. Op-amp as Integrator and Differentiator.
3. Study of Schmitt Trigger using op-amp.
4. IC 555 as variable duty cycle.</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month: July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Study of function generator using IC 8038
2. Study of PLC Simulator (TriLOGI Software) and implementing Boolean function.
3. Programming PLC for sequential logic RS -FF,JK-FF,T-FF,D-FF
4. 8. Study of PLC timers and counters in PLC</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Programming PLC for Bottle filling plant
2. Programming for Automatic parking Gate
3. Study and implementation of proportional controller using opamp.
4. Build and test Amplitude Modulator and Demodulator</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month : September 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td>Practicals:</td><td></td></tr>
</table>

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416003

0	20	20	1. Build and test Frequency Modulator and Demodulator. 2. Build and test Frequency Shift Keying. 3. Build and test Delta Modulation circuit using IC. 4. Build and test Pulse Amplitude Modulation	
Month : October 2020			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Practicals: 1. Study of ASK Modulator. 2. Study of Composite Video Signal 3. Study of RF tuned amplifier 4. Build and test Pulse width modulation	
0	20	20		

Dr. G.S.Nhivekar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416003

Mr.D.M.Panhalkar
Head
Department of Electronics
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. G. S. Nhivekar**

Programme: B.Sc. III Semester- VI

Subject: Electronics Course Title: **DSC-1005A Section-II: Digital Integrated Circuit**

<table>
<tr><td colspan="3">Month : November 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Adjustment and study of DTH
2. Study of PSK Modulator
3. Stepper motor / DC motor interfacing to 8051
4. 8051 Timer programming in mode 1 and mode 2</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month: December 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Arithmetic and logical operations using 8051-C
2. LED and Relay/Thumbwheel switch and seven segment display interfacing to 8051.
3. DAC0808/ADC0804 interfacing to 8051</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month: January 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Practicals:
1. Use of MPLAB simulator: I/Oport programming(Square wave generation, Toggle port) Programming of PIC(PIC18XX/PIC16XX) in timer1 16-bit mode
2. Serial communication using PIC(PIC18XX/PIC16XX)
3. Programming of PIC(PIC18XX/PIC16XX) on chip ADC
4. SCR firing by UJT
5. AC Voltage controller</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>20</td><td>20</td></tr>
<tr><td colspan="3">Month : Feb 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
</table>

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR

Lectures	Practical	Total	Practicals:	
			1. Study of thermocouple (594/595) 2. Study of characteristics of RTD(PT-100) 3. Study of Instrumentation Amplifier(TL084/LM324) 4. Measurement using Strain Gauge and Bridge Amplifier	
0	20	20		
Month : Feb 2020			Module/Unit:	Sub-units planned
Lectures	Practical	Total	1. Use of MPLAB simulator: Addressing modes. 2. SCR firing by UJT 3. AC Voltage controller 4. Study of AC / DC Timer	
0	20	20		

Dr. G. S. Nhivekar

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416003

Mr.D.M.Panhalkar

Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. III Semester-V

Subject: ***Electronics(Paper-XI)*8051 Microcontroller Interfacing and Embedded C**

Month : June 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit1: Serial communication in 8051.	Serial Port : Serial port of 8051, RS-232 standard and IC MAX–232, Concept of Baud rate, Baud rate in 8051, Baud rate doubling using crystal frequency and PCON register,
12	0	12		
Month: July 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit1: Serial communication in 8051	SBUF, SCON registers, various modes of serial port, Importance of TI and RI flags, programming for data transmission and repletion in mode–1 in ALP.
12	0	12	Unit2: Programming of 8051 in C	Advantages and disadvantages Program in 8051-C & Assembly Language. Data types and time delay in 8051-C,I/O programming in 8051-C,Accessing SFR addresses in 8051- C, Logical operation in 8051 C.
Month: August 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit2: Programming of 8051 in C	Data conversion programs in 8051 C. Accessing code ROM space in 8051 C, programming for Time delay generation(using timer), external interrupts (Level and edge triggering) and transmits, receive data serially
12	0	12	Unit 3: Real World Interfacing of 8051	Interfacing LED, LCD, Switch, Relay, 4X4 matrix keyboard, opto-coupler, thumb wheel switch
Month : September 2019			Module/Unit:	Sub-units planned
Lectures	**Practicals**	**Total**	Unit 3: Real World Interfacing of 8051	and seven segment display, seven segment (multiplexing mode), Stepper Motor, DAC0808 and ADC0804. Speed Control of DC motor by PWM technique.

12	0	12		
			Unit 4: Applications of 8051	Case study's: i) Temperature measurement using LM35, ADC0804, LCD. ii) Water level controller iii) Traffic Light controller
Month : October 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: Applications of 8051	iv) speed measurement of motor v) Gate Emulator (Logic Gate study using microcontroller) (Use ALP/C during programming)
12	0	12		

Dr. P. S. Jadhav

VIVEKANAND COLLEGE KOLHAPUR (AUTO.) ESTD. JUNE 1964

Mr.D.M.Panhalkar

Head

Department of Electronics

Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. III Semester-VI

Subject: **Electronics (Paper XV) Advanced Microcontroller Architecture: PIC**

<table>
<tr><td colspan="3">Month : November 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit1:Introduction</td><td rowspan="2">Introduction, Features of PIC microcontrollers: Watch Dog Timer (WDT), Brownout detector, ISP, I2C bus, SPI bus. Harvard vs. Von Neumann architecture (#57-58), CISC and RISC(62-65), Overview of PIC12XX, PIC16XX, PIC17XX and PIC18XX (*Microchip Manual pg.17).</td></tr>
<tr><td>12</td><td>0</td><td>12</td></tr>
<tr><td colspan="3">Month: December 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit1:Introduction</td><td rowspan="2">WREG register(#18), PIC file register, SFRs, GPR, GP RAM vs EEPROM, File register and access bank in the PIC18(#21-25), PIC status register(#35-36), Pin diagram (18F458) ($ 2, 10-15), Minimum connection(Clock and reset circuit)(#280),Configuration register and LIST directive(#282-292)</td></tr>
<tr><td>12</td><td>0</td><td>12</td></tr>
<tr><td colspan="3" rowspan="2"></td><td>Unit2: Instruction set and programming of PIC18</td><td>Instruction set(#660-697), Addressing modes, stack and stack pointer in PIC18(#88-90), ROM width in the PIC18(#55-56),PIC18 time delay and delay calculations, pipelining, instruction cycle
time, branch penalty, loop inside a loop delay(#95-102),</td></tr>
<tr><td colspan="3">Month: January 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit 2: Instruction set and programming of PIC18</td><td rowspan="2">I/O ports programming, I/O bit manipulation programming, program for square wave generation at port pin and port, reading and monitoring single bit, reading input pin vs LATx port(#109-129), BCD to ASCII, ASCII to BCD(#162 to 164) conversion, bank switching(#197-203)</td></tr>
<tr><td>12</td><td>0</td><td>12</td></tr>
<tr><td colspan="3">Month : February 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td>Unit 3: Facilities in</td><td>Programming timers 0 and 1: T0CON,</td></tr>
</table>

12	0	12	PIC18 Part-I	INTCON, T1CON, PIR1 register, steps to programming((ALP/C)) timer 0 in 16 bit mode and 8-bit mode, delay calculation (Timer count calculation),T2CON, T3CON register (#314-359)PIC18
Month : March 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 3: Facilities in PIC18 Part-I	Interrupts: Interrupt vector table in PIC18, sources of interrupts, interrupts enabling, Programming (ALP/C)of external hardware interrupts, port B change interrupts, setting interrupt priority(#402-406,417-422,427-428,432-434).
12	0	12		
Month : April 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: Facilities in PIC18 Part-II	PIC18 serial communication: serial port programming, SPBRG, TXREG, RCREG, TXSTA, RCSTA register, Interfacing MAX232 to PIC18, programming(ALP/C) PIC18 to transfer and receive data serially, importance of TXIF and RCIF flag, quadrupling baud rate, baud rate error calculation(#375-387)
12	0	12		
Month : May 2020			Module/Unit:	Sub-units planned
			Unit 4: Facilities in PIC18 Part-II	ADC programming in the PIC18: ADC features programming, ADCON0 , ADCON1 register, conversion time, steps for programming(ALP/C) the ADC using polling in assembly, ADC programming using interrupts(#483-492)

Dr. P. S. Jadhav

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416 003

Mr.D.M.Panhalkar

Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. I Semester- I

Subject: Electronics Course Title: **ELECTRONINCS LAB**

<table>
<tr><td colspan="3">Month : June 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. To familiarize with basic electronic components (R, C, L, diodes, transistors), Digital Multimeter, Function Generator, power supplies and Oscilloscope etc.
2. Measurement of Amplitude, Frequency & Phase difference using Oscilloscope.
3. Study of the I-V Characteristics of (a) p-n junction Diode, and (b) Zener diode.</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>16</td><td>16</td></tr>
<tr><td colspan="3">Month : July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>0</td><td>16</td><td>16</td><td>1. Study of Full wave rectifier.
2. To verify the Thevenin and Superposition Theorems
3. Study of Logic Gates.
4. Study of Universal Gates</td><td></td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>0</td><td>16</td><td>16</td><td>1. Half Adder and Subtractor
2. Full Adder and Subtractor (using 7483 & 7404)
3. Study of Encoder & seven segment Decoder.
4. Study of Multiplexer (4 :1) and Demultiplexer (1 :4)</td><td></td></tr>
<tr><td colspan="3">Month: September 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
</table>

0	16	16	1. Arithmatic operation using 8051 2. Logical operations using 8051. 3. Study of timers of 8051 in mode 1 and mode 2. 4. Study of interfacing of LED to 8051 microcontroller.	
Month: October 2019			Module/Unit:	Sub-units planned
0	16	16	1. Study the effect of (a) C- filter and (b) Zener regulator on the output of FWR 2. To verify the Norton and Maximum power Transfer Theorems. 3. Design and analyze the series and parallel LCR circuits 4. Study any Boolean expression using K-map.	

Dr. P. S. Jadhav

VIVEKANAND COLLEGE * KOLHAPUR 416 003 * ESTD. JUNE 1964

Mr.D.M.Panhalkar

Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. I Semester- II

Subject: Electronics Course Title: **ELECTRONINCS LAB**

Month : November 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. To build and test Flip-Flop (RS, Clocked RS, D). 2. To make a Shift Register (serial-in and serial-out) using D-type/JK Flip-Flop ICs 3. Op-Amp as adder and Subtractor	
0	16	16		
Month : December 2019			Module/Unit:	Sub-units planned
0	16	16	1. Design the inverting and non-inverting amplifier using an Op-Amp of given gain. 2. To investigate the use of an op-amp as an Integrator & Differentiator. 3. To design a Wien bridge oscillator for given frequency using an op-amp.	
Month :January 2020			Module/Unit:	Sub-units planned
0	16	16	1. Design a digital to analog converter (DAC) of given specifications. 2. To design an Astable Multivibrator of given specification using IC 555 Timer. 3. To design a Monostable Multivibrator of given specification using IC 555 Timer.	
Month: February 2020			Module/Unit:	Sub-units planned
0	16	16	1. Design a Colpitt's oscillator of given frequency. 2. Study of the output and transfer I-V characteristics of common source JFET 3. Design of a Single Stage CE	

			amplifier of given gain & study frequency response.	
Month: March 2020			Module/Unit:	Sub-units planned
0	16	16	1. Study the effect of (a) C- filter and (b) Zener regulator on the output of FWR 2. To verify the Norton and Maximum power Transfer Theorems. 3. Design and analyze the series and parallel LCR circuits	
Month: April 2020			Module/Unit:	Sub-units planned
0	16	16	1. To study the zero-crossing detector and comparator. 2. Design clocked SR and JK Flip-Flop's using Gates. 3. Design 4-bit asynchronous counter using Flip-Flop ICs.	
Month: May 2020			Module/Unit:	Sub-units planned
0	16	16	1. Study any Boolean expression using K-map. 2. Design a SAR type ADC of given specifications.	

Dr. P. S. Jadhav

VIVEKANAND COLLEGE * KOLHAPUR-416 003 * ESTD. JUNE 1964

Mr.D.M.Panhalkar
Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. II Semester- III

Subject: Electronics Course Title: **ELECTRONINCS LAB**

Month : November 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. To build and test Flip-Flop (RS, Clocked RS, D). 2. To make a Shift Register (serial-in and serial-out) using D-type/JK Flip-Flop ICs 3. Op-Amp as adder and Subtractor	
0	16	16		
Month : December 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Design the inverting and non-inverting amplifier using an Op-Amp of given gain. 2. To investigate the use of an op-amp as an Integrator & Differentiator. 3. To design a Wien bridge oscillator for given frequency using an op-amp.	
0	16	16		
Month :January 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Design a digital to analog converter (DAC) of given specifications. 2. To design an Astable Multivibrator of given specification using IC 555 Timer. 3. To design a Monostable Multivibrator of given specification using IC 555 Timer.	
0	16	16		
Month: February 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Design a Colpitt's oscillator of given frequency. 2. Study of the output and transfer I-V characteristics of common source JFET 3. Design of a Single Stage CE	
0	16	16		

<table>
<tr><td colspan="3"></td><td>amplifier of given gain & study frequency response.</td><td></td></tr>
<tr><td colspan="3">Month: March 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. Study the effect of (a) C- filter and (b) Zener regulator on the output of FWR
2. To verify the Norton and Maximum power Transfer Theorems.
3. Design and analyze the series and parallel LCR circuits</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>16</td><td>16</td></tr>
<tr><td colspan="3">Month: April 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. To study the zero-crossing detector and comparator.
2. Design clocked SR and JK Flip-Flop`s using Gates.
3. Design 4-bit asynchronous counter using Flip-Flop ICs.</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>16</td><td>16</td></tr>
<tr><td colspan="3">Month: May 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. Study any Boolean expression using K-map.
2. Design a SAR type ADC of given specifications.</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>16</td><td>16</td></tr>
</table>

Dr. P. S. Jadhav

VIVEKANAND COLLEGE ★ KOLHAPUR-416 003 ★ ESTD JUNE 1964

Mr.D.M.Panhalkar

Head

Department of Electronics

Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. II Semester- III

Subject: Electronics Course Title: **ELECTRONINCS LAB (II) : DSC -1005D(pr)**

<table>
<tr><td colspan="3">Month: June 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. To design an Amplitude Modulator using Transistor/ Op-amp
2. To study envelope detector for demodulation of AM signal
3. To study FM - Generator / Detector circuit
4. To study AM Transmitter / Receiver</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>32</td><td>32</td></tr>
<tr><td colspan="3">Month : July 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. To study Pulse Amplitude Modulation (PAM)
2. To study Pulse Width Modulation (PWM)
3. To study Pulse Position Modulation (PPM)
4. To study ASK modulator</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>32</td><td>32</td></tr>
<tr><td colspan="3">Month: August 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1. Addition and subtraction of numbers using direct addressing mode
2. Addition and subtraction of numbers using indirect addressing mode
3. Multiplication by repeated addition.
4. Division by repeated subtraction.</td><td rowspan="2"></td></tr>
<tr><td>0</td><td>32</td><td>32</td></tr>
<tr><td colspan="3">Month: September 2019</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td>1. Arithmatic operation using 8051
2. Logical operations using 8051.
3. Study of timers of 8051 in mode 1 and</td><td></td></tr>
</table>

0	32	32	mode 2. 4. Study of interfacing of LED to 8051 microcontroller. 5. Block data handling 6. Use of CALL and RETURN Instruction.	
Month: October 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. To study FM Transmitter /Receiver 2. To study Time Division Multiplexing (TDM) 3. To study PSK modulator 4. To study FSK modulator 5. Addition of 16-bit Numbers.	
0	32	32		

Dr. P. S. Jadhav

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Head
Department of Electronics
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2019-20

Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: B.Sc. II Semester- IV

Subject: Electronics Course Title: **ELECTRONINCS LAB (II): DSC -1005D (pr)**

Month: November 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Logical oprations using 8051. 2. Study of timers of 8051 in mode 1 and mode 2. 3. Study of interfacing of LED to 8051 microcontroller.	
0	32	32		
Month : December 2019			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Study of interfacing of 7-segment display. 2. Study of interfacing multiplexed 7-segment display. 3. Study of interfacing of stepper motor. Study of interfacing of D.C motor.	
0	32	32		
Month: January 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Designing of Printed circuit board (PCB) using Software 2. Development of Printed circuit board (PCB) 3. Soldering techniques: Assemble electronic circuit	
0	32	32		
Month: February 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Build Regulated Power Supply using IC 7805 2. Build Dual Power Supply using IC 7809 and IC 7909 3. Assemble Electric Board with switches, sockets and Miniature circuit Breaker(MCB) and measure Voltage, Current and Power for given device	
0	32	32		
Month: March 2020			Module/Unit:	Sub-units planned

Lectures	Practicals	Total	1. Study of interfacing of LED array 2. Temperature Controller using IC 741 /Microcontroller8051. 3. Designing of Variable Power Supply using LM 317.	
0	32	32		
Month: April 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	1. Study and fault finding of: Fan /Iron/ Mixer/Cell phone Charger 2. Build Lighting system using LED, Solar Panel and Chargeable Battery	
0	32	32		

Dr. P. S. Jadhav

VIVEKANAND COLLEGE * KOLHAPUR * ESTD. JUNE 1964

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Department of Electronics

Vivekanand College, Kolhapur.