Vijaya College, RV Road, Bengaluru-560004

Department of Electronics

NAAC criteria-1: CURRICULAR ASPECTS for the academic year 2022-2023

1. Academic Planner with unitisation of the Entire Syllabus (on hourly basis)
(CBCS for 5th Semester and NEP for 1st and 3rd Semester)

Name of the Department	**Electronics**	**Subject Title**	**Teacher**
Semester	**I**	**Electronics Devices and Circuits**	
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
3rd week of Sept		Review of passive components – R, L & C	**MSB**
		Review of Number systems – types, Binary, Octal and Hexadecimal	**MSB**
		Bipolar Junction Transistor-Construction, principle & working of NPN transistor, terminology	**RMS**
		Review of PN junction diode and diode approximations.	**SMM**
4th week of Sept		Voltage and current sources–ideal and practical, conversion from voltage source to current source and vice versa, numerical problems.	**MSB**
		Inter conversion of the Binary number into Decimal and vice versa.	**MSB**
		Block diagram of a Regulated Power Supply, Rectifiers – HWR, FWR- center tapped and bridge FWRs. Circuit diagrams, working and waveforms	**RMS**
		Configuration – CE, CB, CC (mention only). Definition of α, β and γ and their interrelations	**SMM**
1st week of Oct		Review of Ohms law, Kirchhoff's laws, numerical problems	**MSB**
		Inter conversion of the Octal number system to Decimal and vice versa and numerical problems	**MSB**
		leakage currents(mention only), numerical problems.	**RMS**
		ripple factor & efficiency(no derivations), comparison and numerical problems.	**SMM**
2nd week of Oct		voltage divider and current divider theorems, numerical problems.	**MSB**
		Inter conversion of the Hex and decimal num into Decimal and vice versa - numerical problems	**MSB**
		Filters– types, circuit diagram and explanation of shunt capacitor filter with	**RMS**

	waveforms.	
	Study of CE Characteristics - different regions. Experimental circuit and procedure.	**SMM**
3rd week of Oct	open and short circuits. Thevenin's theorem statement and steps, numerical problems.	**MSB**
	Arithmetic operations on Binary numbers –addition	**MSB**
	Study of CB Characteristics - different regions, Base width modulation-Early effect. Hybrid parameters –definitions of h_{ie}, h_{oe}, h_{fe} and h_{re}	**RMS**
	Zener diode regulator– circuit diagram and explanation for load and line regulation,	**SMM**
4th week of Oct	Norton's theorem statement and steps. Problems on Norton's theorem	**MSB**
	Arithmetic operations on Binary numbers -addition	**MSB**
	numerical problems on load regulation	**RMS**
	Transistor biasing – need for biasing, DC load line, operating point, thermal runaway, stability and stability factor (mention the equation-no derivation).	**SMM**
1st week of Nov	superposition theorem–statements and steps involved, numerical problems.	**MSB**
	Arithmetic operations on Hexadecimal numbers -addition	**MSB**
	Different types of biasing– Fixed bias(base bias) without and with R_E, collector to base bias	**RMS**
	Numerical problems and disadvantages of Zener diode regulator.	**SMM**
2nd week of Nov	reciprocity theorem– statement, and steps, numerical problems	**MSB**
	Arithmetic operations on Hexadecimal numbers -addition	**MSB**
	Transistor series regulator – circuit diagram and working	**RMS**
	voltage divider bias and emitter bias ($+V_{CC}$ and $-V_{EE}$ bias) –circuit diagrams and their working	**SMM**
3rd week of Nov	Problems on reciprocity theorem.	**MSB**
	Arithmetic operations on Binary numbers - subtraction	**MSB**
	Q point expressions for voltage divider biasing only with numerical problems	**RMS**
	Problems on voltage regulators	**SMM**
4th week of Nov	maximum power transfer theorem-derivation. numerical problems.	**MSB**

	Arithmetic operations on Binary and Hexa decimal numbers - addition	**MSB**
	Arithmetic operations on Binary and Hexa decimal numbers - subtraction	**MSB**
	Two port network, h parameter equivalent circuit	**RMS**
1st week of Dec	numerical problems on maximum power transfer theorem, Transient analysis of RC excited by Dc source	**MSB**
	Complement Subtraction operations on Binary numbers - 2's complement	**MSB**
	Small Signal amplifier, CE amplifier -operation	**RMS**
	re model, expressions for current, voltage gain and input/ output impedances	**SMM**
2nd week of Dec	Series RC circuit excited by DCsource-charging& discharging of a capacitor through resistor- circuit diagram and qualitative study,charge	**MSB**
	voltage at any instant during charging and discharging–equations for RC circuit	**SMM**
	Encoding, types of codes, Positional and non positional. BCD, 2421 codes	**MSB**
	CC amplifier, advantages, GBW, darlington	**RMS**
3rd week of Dec	Transient analysis of RL circuits , growth and decay of current-derivation.	**MSB**
	XS-3 and Gray codes, self complement property, ASCII, EBCDIC codes	**MSB**
	problems on transient response of RC and RL circuits.	**SMM**
	RC and RL series circuits excited by ac, Impedance, Phase and voltage relations-numerical problems	**MSB**
4th week of Dec	RLC series and parallel circuits excited by ac, Impedance, Phase and voltage relations, frequency, bandwidth, q factor- numerical problems	**MSB**
	Boolean logic operators	**MSB**
	Special semiconductor devices-LED	**RMS**
	LCD and solar cell	**SMM**
5th week of Dec	AND, OR, NOT Boolean law	**MSB**
	De Morgan's Theorems	**MSB**

	Boolean algebra and simplifications	**MSB**
	7 Segment display	**RMS**
1st week of Jan	Derived logic gates, Universal property, simplifications	**MSB**
	Revision on network theorems and transient response of passive components	**MSB**
	Previous year question papers solved along with model papers	**RMS**
	Previous year question papers solved along with model papers	**SMM**
	Revision on network theorems and transient response of passive components and network theorems	**MSB**
	Previous year question papers solved along with model papers	**RMS**
2nd week of Jan	Revision on network theorems and transient response of passive components	**MSB**
	Previous year question papers solved along with model papers	**RMS**
	Previous year question papers solved along with model papers	**SMM**
	Revision on network theorems and transient response of passive components and network theorems	**MSB**

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NAAC criteria-1: CURRICULAR ASPECTS for the academic year 2021-2022

2. Academic Planner with unitisation of the Entire Syllabus (on hourly basis)
(CBCS for 5th Semester and NEP for 1st and 3rd Semester)

Name of the Department	**Electronics**	**Subject Title**	**Teacher**
Semester	**III**	**DIGITAL DESING USING VERILOG AND 'C' PROGRAMMING**	
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
2nd week of Oct		Introduction, Importance of C, Character set, Tokens, keywords, identifier, constants, basic data types.	**MSB**
		A Brief History of HDL, Structure of HDL Module, Comparison of VHDL and Verilog	**MSB**
		Variables: declaration & assigning values. Structure of C program Arithmetic operators, examples with programs	**MSB**
		A Brief History of HDL, Structure of HDL Module, Comparison of VHDL and Verilog	**MSB**
2nd week of Oct		relational operators, logical operators, Examples with programs	**MSB**
		Introduction to Simulation and Synthesis Tools, Test Benches.	**MSB**
		Verilog: Module, Delays, brief description - data flow style	**SMM**
		Example program on data flow style	**MSB**
3rd week of Oct		bit wise operators,expressions and evaluation of expressions, type cast operator,	**MSB**
		Verilog: Module, Delays, brief description - data flow style	**MSB**
		Example program on data flow style	**MSB**
		Behavioural style and example programs	**SMM**
4th week of Oct		Lab programs corresponding to all operators	**MSB**
		structural style and example programs	**MSB**
		Verilog-Mixed design style and example programs	**MSB**

	Lab programs corresponding to all operators	**MSB**
1st week of Nov	Arrays-concepts, declaration, accessing elements, storing elements, example program.	**MSB**
	Language Elements- Introduction, Keywords	**MSB**
	two-dimensional and multi-dimensional arrays. Example program.	**MSB**
	Identifiers, White Space Characters, Comments	**SMM**
2nd week of Nov	Lab programs corresponding to arrays (Matrix programs)	**MSB**
	Format, Integers, reals and strings.	**MSB**
	Lab programs corresponding to arrays (Matrix programs)	**MSB**
	Logic Values, Data Types-net types, undeclared nets, scalars and vector nets.	**SMM**
3rd week of Nov	Lab programs corresponding to arrays (Matrix programs)	**MSB**
	Register type and Parameters	**MSB**
	Input output statement–sprintf(), scanf() &getch()).	**MSB**
	Expressions: Operands, Operators, types of Expressions	**SMM**
4th week of Jul Nov	Gate level modeling -Introduction, built in Primitive Gates, multiple input gates, Tri-state gates, pull gates	**MSB**
	library functions (math and string related functions).	**MSB**
	Decision making, branching and looping : if, if-else, nested if-else, example programs.	**MSB**
	Summing amplifier/Adder and subtractor – derivation for the output voltage.	**SMM**
5th week of Nov	else-if, else-if ladder with Example programs.	**MSB**
	MOS switches, bidirectional switches, gate delay, Array instances, implicit nets,Illustrative Examples (both combinational and sequential logic circuits)	**MSB**
	Data flow Modeling: Continuous assignment, net declaration assignments, delays, net delays and examples	**MSB**
	switch statement, break statement with example programs	**SMM**
1st week of Dec	for loop Explanation, nested for loop Example programs	**MSB**

	while loop explanation with example program	**MSB**
	Behavioral Modeling: Procedural constructs, timing controls, block statement, procedural assignments	**MSB**
	Conditional statement, loop statement, Illustrative Examples	**SMM**
2nd week of Dec	do loop, example programs, difference between entry level control and exi level control loops.	**MSB**
	Defining functions, function arguments and passing,	**MSB**
	Procedural continuous assignment, Illustrative Examples	**MSB**
	Multiplexer– 4:1 multiplexer using gates and truth table	**SMM**
3rd week of Dec	Registers and counters- 4bit serial in serial out register, timing diagram and truth table.	**MSB**
	Lab programs on verilog	**MSB**
	returning values from functions .Example program	**MSB**
	example programs on functions. Factorial and student result	**SMM**
4th week of Dec	defining and declaring a structure variables, accessing structure members, Example programs	**MSB**
	Lab programs on verilog	**MSB**
	initializing astructure, copying of structure, Example programs	**MSB**
1st week of Jan	Programs on structures	**MSB**
	Solving previous year question papers	**MSB**
	comparing structure variables, array of structures, arrays within structures.	**MSB**
	Solving previous year question papers	**SMM**
2nd week of Jan	structures within structures, structures and function.	**MSB**
	Solving previous year question papers	**MSB**
	Unions-size of structures, bit fields	**MSB**
	Solving previous year question papers	**SMM**
3rd week of Jan	Revision on C programming and lab programs	**SMM**

	Solving previous year question papers	**SMM**
	Revision on C programming and lab programs	**MSB**
	Solving previous year question papers	**MSB**
4th week of Jan	Revision on C programming and lab programs	**SMM**
	Solving previous year question papers	**SMM**
	Revision on C programming and lab programs	**MSB**
	Solving previous year question papers	**MSB**
1st week of Feb	Revision on C programming and lab programs	**SMM**
	Solving previous year question papers	**SMM**
	Revision on C programming and lab programs	**MSB**
	Solving previous year question papers	**MSB**

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NAAC criteria-1: CURRICULAR ASPECTS for the academic year 2021-2022

3. Academic Planner with unitisation of the Entire Syllabus (on hourly basis)
(CBCS for 5th Semester and NEP for 1st and 3rd Semester)

Name of the Department	**Electronics**	**Subject Title**	**Teacher**
Semester	**V**	**Paper 5 COMMUNICATION-I**	
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
1st week of Oct	1	Noise-Introduction, internal and external noises,	**RMS**
	2	Block diagram of electronic communication system.	**RMS**

	3	Radiation Mechanism, Wire Radiators in space-Resonant	**SMM**
2nd week of Oct	1	signal to noise ratio and noise figure-Numerical examples.	**RMS**
	2	Modulation-need and types of modulation-AM, FM & PM	**RMS**
	3	Antennas-radiation pattern and current distribution for different lengths Non Resonant Antenna,	**SMM**
3rd week of Oct	1	Transmission lines - types and equivalent circuit of T-lines, primary and secondary constants.	**RMS**
	2	Antenna parameters-Gain, Directive gain, Power gain, Bandwidth,	**SMM**
	3	Amplitude modulation – representation, modulation index, expression for instantaneous voltage,	**RMS**
4th week of Oct	1	Beam width, Polarisation, Efficiency, Radiation Resistance	**SMM**
	2	power relations frequency spectrum, DSBFC, DSBSC and SSBSC (mention only),	**RMS**
	3	Reflection co-efficient, VSWR and CSWR-numerical examples,	**RMS**
1st week of Nov	1	, Total effective resistance,Derivation for the Power radiated by antenna and expression for Radiation resistance.,	**SMM**
	2	AM collector modulator Limitations of AM. FM - definition, modulation index,	**RMS**
	3	losses and Distortions in T-lines. Propagation of waves-ground wave,	**RMS**
2nd week of Nov	1	Ungrounded and Grounded antennas, Effect of antenna height.	**SMM**
	2	FM frequency spectrum diagram, Bandwidth requirements, frequency deviation and carrier swing,	**RMS**
	3	sky-wave and space wave propagations, ionosphere and its effects.	**RMS**
3rd week of Nov	1	FM generator-varactor diode modulator. Block diagram of AM transmitter and FM transmitter with AFC	**RMS**
	2	Folded dipole Numerical examples wherever applicable.	**SMM**
	3	qualitative study of pre-emphasis. Comparison of AM and FM. Numerical examples.	**RMS**
4th week of Jul Nov	1	Qualitative study of helical antenna and loop antenna.	**SMM**
	2	Demodulation- AM detection – principles of detection, linear diode and Transistor detector-circuits, principle of working and waveforms.	**RMS**
	3	Introduction, scanning, interlaced scanning, T.V. Camera tube	**SMM**

		(vidicon),	
5th week of Nov	1	FM detector – principle, slope detector-circuit, working.	**RMS**
	2	composite video signal – blanking and synchronizing pulses, vestigial side band transmission,	**SMM**
	3	AM superheterodyne receiver– principle, block diagram, function of each stage with waveform,	**RMS**
1st week of Dec	1	TV systems and standards – Comparison between American and European systems.,	**SMM**
	2	qualitative study of AGCFM superheterodyne receiver– principle, block diagram, function of each stage with waveform	**RMS**
	3	Block diagrams of monochrome TV transmitter and receiver	**SMM**
2nd week of Dec	1	Basic principles of colour TV, primary and secondary colours colour combinations,	**SMM**
	2	qualitative study of de-emphasis.	**RMS**
	3	chromo and luminance processing as per PAL system.	**SMM**
3rd week of Dec	1	Characteristics of radio receivers-qualitative study of sensitivity,	**RMS**
	2	Colour TV receiver (PAL).	**SMM**
	3	selectivity, signal to noise ratio, fidelity, stability, image frequency and its rejection	**RMS**
4th week of Dec	1	Concept of CCTVHDTV	**SMM**
	2	Picture in Picture, Picture phones, TV games	**SMM**
	3	Numerical examples on television.	**SMM**
1st week of Jan	1	Revision and previous year question paper solving	**RMS**
	2	Revision and previous year question paper solving	**SMM**
	3	Revision and previous year question paper solving	**RMS**
2nd week of Jan	1	Revision and previous year question paper solving	**RMS**
	2	Revision and previous year question paper solving	**SMM**
	3	Revision and previous year question paper solving	**RMS**
3rd week of Jan	1	Revision and previous year question paper solving	**RMS**
	2	Revision and previous year question paper solving	**SMM**
	3	Revision and previous year question paper solving	**RMS**

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4. Academic Planner with unitisation of the Entire Syllabus (on hourly basis)
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Name of the Department	**Electronics**	**Subject Title**	**Teacher**
Semester	**V**	Paper 6 MICROPROSSESOR and ELECTRONIC INSTRUMENTATION	
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
1st week of Oct	1	Introduction, applications, basic block diagram	**MSB**
	2	Introduction, applications, basic block diagram	**MSB**
	3	Introduction to general measurement system – characteristics - definition –static & dynamic	**MSB**
2nd week of Oct	1	Microprocessor 8085:Features, architecture –block diagram. Explanation of each block.	**MSB**
	2	Pin diagram of 8085, internal registers, register pairs, flags, stack pointer, program counter.	**MSB**
	3	Problems on Errors	**MSB**
3rd week of Oct	1	types of buses. Multiplexed address and data bus, generation of control signals, pin description of microprocessor8085.	**MSB**
	2	8085 Instructions-Operation code, Operand & Mnemonics. Instruction set of 8085, instruction classification, addressing modes.	**MSB**
	3	Transducers, types – resistive	**MSB**
4th week of Oct	1	instruction format, Data transfer instructions, Example programs.	**MSB**
	2	arithmetic instructions, Example programs.	**MSB**
	3	Transducers, types – Capacitive	**MSB**
1st week of Nov	1	increment &decrement instructions, logical instructions, Example programs.	**MSB**
	2	branch instructions, Example programs.	**MSB**
	3	inductive transducers, strain gauge, numerical problems	**MSB**
2nd week of Nov	1	machine control instructions. Example programs	**MSB**
	2	Stack operations, subroutine calls and return operations,	**MSB**

		Example program.	
	3	LVDT (variable inductive transducers)	**MSB**
3rd week of Nov	1	Delay loops, use of counters, problems on single loops and nested loops.	**MSB**
	2	timing diagrams-instruction cycle, machine cycle, T-states	**MSB**
	3	temperature transducers- thermo couple, thermistors – ultrasonic temperature transducer	**MSB**
4th week of Nov	1	timing diagrams-instruction cycle, machine cycle, T-states,	**MSB**
	2	Programs for data transfer and memory operations (direct & indirect addressing), addition and subtraction of two 8-bit & 19- bit numbers	**MSB**
	3	photoelectric transducers	**MSB**
5th week of Nov	1	multiplication, display of smallest / largest number in a given array of numbers	**MSB**
	2	sorting of numbers in descending / ascending order.	**MSB**
	3	pressure transducers-MIC and loud speaker	**MSB**
1st week of Dec	1	Number of 1's and 0's in a given byte, testing for zero condition.	**MSB**
	2	1's and 2's complements. Verification of truth tables of logic gates	**MSB**
	3	signal conditioning (concept only)	**MSB**
2nd week of Dec	1	program to add two N byte numbers, program to generate Fibonacci series up to the limit	**MSB**
	2	program to find the factorial of a number, program to find the GCD of two integer numbers.	**MSB**
	3	amplifier – chopper amplifier –carrier amplifier - lock in amplifier.	**MSB**
3rd week of Dec	1	I/O instructions and, interrupts in 8085.Basic interfacing concepts	**MSB**
	2	compatible ICs of μP 8085, data transfer, synchronous I/O data transfer using interrupts.	**MSB**
	3	Origin of bio-electric signals, resting & action potential – propagation	**MSB**
4th week of Dec	1	Memory interfacing– address decoding, interfacing RAM and ROM.	**MSB**
	2	Interfacings I/O devices– input port, output port, IN & OUT instructions.	**MSB**
	3	physiological transducers – active & passive transducer for medical application	**MSB**
1st week of Jan	1	interfacing input devices (interfacing matrix key board-	**MSB**

		block diagram).	
	2	interfacing output devices (LED display interfacing-block diagram).	**MSB**
	3	diagnostic & analytical equipments -electrodes for ECG	**MSB**
2nd week of Jan	1	PPI IC 8255– features, pin diagram, functional block diagram	**MSB**
	2	Control register modes-BSR and IO mode, examples	**MSB**
	3	diagnostic & analytical equipments -electrodes for EEG	**MSB**
3rd week of Jan	1	Revision on Microprocessor and programs	**MSB**
	2	Revision on Microprocessor and programs	**MSB**
	3	diagnostic & analytical equipments -electrodes for EMG	**MSB**
4th week of Jan	1	PPI IC 8255– features, pin diagram, functional block diagram	**MSB**
	2	Control register modes-BSR and IO mode, examples	**MSB**
	3	diagnostic & analytical equipments -electrodes for EEG	**MSB**
1st week of Feb	1	Revision on Microprocessor and programs	**MSB**
	2	Revision on Microprocessor and programs	**MSB**
	3	diagnostic & analytical equipments -electrodes for EMG	**MSB**