B. Sc ELECTRONICS SYLLABUS UNDER CBCS

(Common Syllabus for all Universities in Andhra Pradesh State)

w.e.f. 2020-21 (revised in June 2020)

YEAR	SEMESTER	Paper	Tittle of the Paper	IA	EA	Total
I Year	I	I	CIRCUIT THEORY AND ELECTRONIC DEVICES	25	75	100
			PRACTICALS		50	50
	II	II	DIGITAL ELECTRONICS	25	75	100
			PRACTICALS		50	50
II Year	III	III	ANALOG CIRCUITS AND COMMUNICATION	25	75	100
			PRACTICALS		50	50
	IV	IV	MICROPROCESSOR SYSTEMS	25	75	100
			PRACTICALS		50	50
		V	MICRO CONTROLLER AND INTERFACING	25	75	100
			PRACTICALS		50	50

Note :

In each semester the Practical examinations shall be conduct deffinately done Externally by an **EXTERNAL PRACTICAL EXAMINER APPOINTED BY THE UNIVERSITY** w.e.f 2020-2021 which will enhance the quality of evaluation & improved Practical Education . Do not Conduct the Practical Examinations internally in any semester by Concerned College under any circumstances , the method is Purely unfaithful .

Syllabus approved

M. Basaveswara 19/10/20

Chairperson

(From: Balayesu Degree College: Hindupur)

Board of Studies in Electronics in B.Sc

S.K.University :: Anantapuramu

B.Sc. Electronics Syllabus under CBCS
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SEMESTER – II **PAPER – 2**

Digital Electronics

Objectives:

- To understand the number systems, Binary codes and Complements.
- To understand the Boolean algebra and simplification of Boolean expressions.
- To analyze logic processes and implement logical operations using combinational logic circuits.
- To understand the concepts of sequential circuits and to analyze sequential systems in terms of state machines.
- To understands characteristics of memory and their classification.
- To implement combinational and sequential circuits using VHDL.

UNIT – I : (12hrs)
NUMBER SYSTEM AND CODES :
Decimal, Binary, Hexadecimal, Octal. Codes: BCD, Gray and Excess-3 codes- code conversions - Complements (1's, 2's,9's and 10's), Addition - Subtraction using complement methods.

UNIT- II : (12hrs)
BOOLEAN ALGEBRA AND THEOREMS :
Boolean Theorems, De-Morgan's laws. Digital logic gates, Multi level NAND & NOR gates. Standard representation of logic functions (SOP and POS) , Minimization Techniques (Karnaugh Map Method: 2,3 variables) .

UNIT-III : (12hrs)
COMBINATIONAL DIGITAL CIRCUITS :
Adders-Half & full adder, Subtractor-Half and full subtractors, Parallel binary adder, Magnitude Comparator, Multiplexers (4:1)) and Demultiplexers (1:4), Encoder (8-line-to-3-line) and Decoder (3-line-to-8-line). IC-LOGIC FAMILIES: TTL logic, CMOS Logic families (NAND&NOR Gates).

UNIT-IV : (12hrs)
SEQUENTIAL DIGITAL CIRCUITS :
Flip Flops : S-R FF , J-K FF, T and D type FFs , Master-Slave FFs , Excitation tables ,
Registers : Serial In Serial Out and Parallel In and Parallel Out ,
Counters : Asynchronous - Mod-8 , Mod-10 , Synchronous - 4-bit & Ring counter.

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UNIT-V : (12hrs)

MEMORY DEVICES :

General Memory Operations, ROM, RAM (Static and Dynamic), PROM, EPROM, EEPROM, EAROM,

TEXT BOOKS:

1. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.
2. Ronald J. Tocci. "Digital Systems-Principles and Applications" 6/e. PHI. New Delhi. 1999.(UNITS I to IV)
3. G.K.Kharate-Digital electronics-oxford university press
4. S.Salivahana & S. Arivazhagan-Digital circuits and design
5. Fundamentals of Digital Circuits by Anand Kumar

Reference Books :

1. Herbert Taub and Donald Schilling. "Digital Integrated Electronics" . McGraw Hill. 1985.
2. S.K. Bose. "Digital Systems". 2/e. New Age International. 1992.
3. D.K. Anvekar and B.S. Sonade. "Electronic Data Converters : Fundamentals & Applications". TMH. 1994.
4. *Malvino and Leach. " Digital Principles and Applications". TMG Hill Edition.*

Outcomes:-

- ✓ Develop a digital logic and apply it to solve real life problems.
- ✓ Analyze, design and implement combinational logic circuits.
- ✓ Classify different semiconductor memories.
- ✓ Analyze, design and implement sequential logic circuits.
- ✓ Simulate and implement combinational and sequential logic circuits using VHDL

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ELECTRONICS LAB - 2

(DIGITAL ELECTRONICS LAB)

LAB LIST:

1. Verification of IC-logic gates
2. Realization of basic gates using discrete components (resistor, diodes & transistor)
3. Realization of basic gates using Universal gates (NAND & NOR gates)
4. Verify Half adder and full adder using gates
5. Verify Half subtractor and full subtractor using gates.
6. Verify the truth table Multiplexer and demultiplexer.
7. Verify the truth table Encoder and ecoder.
8. Verify the truth table of RS , JK, T-F/F using NAND gates
9. 4-bit binary parallel adder and subtractor using IC 7483
10. BCD to Seven Segment Decoder using IC -7447 / 7448

Lab experiments are to be done on breadboard and simulation software (using multisim) and output values are to be compared and justified for variation.

Note :

the Practical examinations shall be deffinately done by an EXTERNAL PRACTICAL EXAMINER APPOINTED BY THE UNIVERSITY w.e.f 2020-2021 .

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M. Basaveraja 19/10/20

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IMPORTANT INSTRUCTIONS TO DEAN / DIRECTOR OF EXAMINATION'S & EVALUATION 'S OF ALL UNIVERSITIES ON THEORY AND PRACTICALS OF EXAMINATIONS :

1. The duration of the examination for each theory examinations is 3 hrs.

   The duration of each practical examination is 2 hrs with 50 marks

2. Each course in theory is of 100 marks and practical course is of 50 marks.

   - Semester End University Examination in Theory

     Course: 75 marks [External evaluation]

   - Semester End University Examination in Practical

     50 marks [External evaluation]

3. In each semester the Practical examinations shall be conduct deffinately done by an EXTERNAL PRACTICAL EXAMINER APPOINTED BY THE UNIVERSITY w.e.f 2020-2021 which will enhance the quality of evaluation & Practical Education. Do not Conduct the Practical Examinations internally in any semester by Concerned College under any circumstances , the method is Purely unfaithful.

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B.Sc. ELECTRONICS

w.e.f. 2020-21 (Revised in June 2020)

MODEL QUESTION PAPER COMMON FOR ALL FIVE THEORY PAPERS

Time : 3 hrs Max marks : 75

SECTION-A

Essay Type Questions *Marks* : 5x10M = 50M

Answer All questions with internal choice from each Unit

1. a) Essay type question from Unit-1

   Or

   b) Essay type question from Unit-1

2. a) Essay type question from Unit-2

   Or

   b) Essay type question from Unit-2

3. a) Essay type question from Unit-3

   Or

   b) Essay type question from Unit-3

4. a) Essay type question from Unit-4

   Or

   b) Essay type question from Unit-4

5. a) Essay type question from Unit-5

   Or

   b) Essay type question from Unit-5

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SECTION-B

Short Answer Type Questions *Marks* : 5x5M = 25M

Answer any Five out of the following Ten questions

6. Short answer type question from Unit-1
7. Short answer type question from Unit-1
8. Short answer type question from Unit-2
9. Short answer type question from Unit-2
10. Short answer type question from Unit-3
11. Short answer type question from Unit-3
12. Short answer type question from Unit-4
13. Short answer type question from Unit-4
14. Short answer type question from Unit-5
15. Short answer type question from Unit-5

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