VIJAYANAGARA SRI KRISHNADEVARAYA UNIVERSITY
JNANASAGARA CAMPUS, BALLARI-583105

Department of Studies in

Electronics

II Semester Syllabus

Bachelor of Science

With effect from 2021-22 and onwards

Semester-II

DSC 2: Electronic Circuits

Course Title: Electronic Circuits	**Course code: : 21BSC2C2ECL**
Total Contact Hours: 55	**Course Credits: 04**
Internal Assessment Marks: 40 marks	**Duration of SEE: 03 hours**
Semester End Examination Marks: 60 marks	

Course Outcomes (CO's):

At the end of the course, students will be able to:

1. Analyze power supplies (ADVANCED).
2. Design different Transistor Biasing Systems.
3. Explain Basics Of Amplifiers.
4. Explain power amplifier and feedback amplifier.

DSC 2: Electronic Circuits

Unit	Description	Hours
1	**DC Regulated power supplies:** Block diagram of regulated power supply, Rectification: Half wave rectifier, center tapped Full wave rectifier and Bridge rectifier- determination of efficiency and ripple factors. Filters: function of Series inductor filter, shunt capacitor filter, LC filter and CLC / filter. Voltage regulators: zener diode regulator, series transistor and shunt transistor regulator and IC regulator 78XX and 79XX series. LM 317 &337 regulator, SMPS.	11
2	**Transistor Biasing:** Need for biasing, essentials of transistor biasing DC load line Analysis, Operating point- determination of operating point-problems. Temperature effect on Q-point, Thermal Runaway. Stability factor- definition & importance Biasing circuits: - designing , stability factors of the following biasing circuits. • Base resister bias / fixed bias • Base bias with emitter Feed back • Base bias with collector feed back • Voltage divider/ universal biasing method. Problems.	11
3	**Single stage transistor amplifier and Multistage transistor amplifier:** CE amplifier with voltage divider network- circuit, function and AC equivalent circuits. Hybrid parameter- definitions, CE, CC & CB hybrid equivalent models and expressions. Derivations for voltage gain, current gain, input impedance and output impedance of CE amplifier in terms of h- parameters.	13

	classification of	
	amplifier based on different parameters, different amplifier couplings andtheir comparison RC-coupled two stage amplifier freq.-response and band width advantage of RC coupled amplifier Transformer coupled amplifier –freq. response Emitter follower circuit - construction, working and analysis. Darling tonpair of transistors.	
4	**Power amplifiers:** Transistor audio power amplifier. Difference b/w voltage and power amplifiers Transformer coupled class –A power amplifiers –expression for maximum efficiency Class-B push –pull amplifiers –power efficiency of amplifiers , cross over distortion &harmonics distortion , complementary symmetry push pull amplifiers. Concept of heat sink used in power transistor, single tuned amplifiers.	10
5	**Feed back in amplifier:** Concept of feed back in amplifiers - positive & negative feedback Effect of –ve feed back on amplifier characteristics - expression forvoltage gain, input impedance, output impedance & band width Comparative study of negative feedback on amplifiers characteristicswith positive feedback.	10

References:

1. Electronic devices & circuits - Jacob Millman & Halkias,
2. Electronic device & circuits theory - Robert Boylsted & Louis Nashelsky3.Fundamental of electronics – B. Basavaraj
4.Applied electronics – R S Sedha

DSC 2: Electronic Circuits Lab

Course Title: Electronic Circuits Lab	Course code: 21BSC2C2ECP
Total Contact Hours: 56	Course Credits: 02
Internal Assessment Marks: 25	Duration of SEE: 03 hours
Semester End Examination Marks: 25	

Course Outcomes (CO's):

At the end of the course, students will be able to:

1. Make connections using breadboard.
2. Design Different Power Supply Systems Using IC's.
3. Design Amplifier Circuits and analyze their Performance.
4. Analyze Performance Of power Amplifier Circuits and Feedback Systems

DSC 2: Electronic Circuits Lab

List of Experiments

1. Half- wave rectifier – determination of ripple factor with & without shunt capacitorfilter.
2. Full -wave rectifier – determination of ripple factor with & without shunt capacitorfilter.
3. Bridge- rectifier – determination of ripple factor with & without shunt capacitor filter.
4. Zener diode voltage regulator- load regulation curve.
5. Series Transistor voltage regulator- load regulation curve.
6. IC 78xx regulated power supply- load regulation curve.
7. IC 79xx regulated power supply- load regulation curve.
8. Single stage RC coupled amplifier- frequency response curve.
9. Emitter follower- determination of voltage gain, current gain, input impedance andoutput impedance.
10. Determination of hybrid parameters for the CE amplifier.
11. Complementary symmetry push pull amplifier.
12. Single tuned amplifier – frequency response.

Note:

1. Minimum of EIGHT experiments must be carried out.
2. Experiments may be added as and when required with the approval of BoS.

References:

1. Basic Electronics: A Text-lab Manual – By Paul B. Zbar, Albert Paul Malvino
2. Experimental electronics – by S.V. Subramanyam.

Name of the Department:

ElectronicsSemester-II

OEC 2: Electronic Instruments and Measurements

Course Title: Electronic Instruments andMeasurements	**Course code: 21BSC2O2EL2**
Total Contact Hours: 42	**Course Credits: 03**
Internal Assessment Marks: 40 marks	**Duration of SEE: 03**
Semester End Examination Marks: 60 marks	

Course Outcomes (COs):

At the end of the course, students will be able to:

1. Describe the conversion of basic meters.
2. Explain the functions of all the knobs of CRO.
3. Make the cable connectors to CRO and Function generator.
4. Identify the all waveforms with their measurements.

OEC 2: Electronic Instruments and Measurements

Unit	Description	Hours
1	**DC and AC Measurement:** Basic D'Arsonval meter construction and working principle of operation. DC measurement: conversion of basic meter into DC voltmeter and ammeter. Concept of ohmmeter and multimeter, AC measurement: voltmeter, ammeter. Digital type voltmeters, digital multimeter.	09
2	**Signal Generators:** Signal Generators-Types of generators and their operation: Audio oscillator,Function generators, Pulse generators, RF generators, Random noise generators, Sweep generator. Probes and Connectors: Test leads, shieldedcables, connectors.	09
3	**Electronic Displays:** Electronic Displays: Cathode Ray Oscilloscope (CRO) and applications:Block diagram of a General Purpose Oscilloscope and its basic operation, electrostatic focusing and deflection, screens for CRT, CRO probes. Typesof CRO's: dual trace oscilloscope, digital storage oscilloscope,	08
4	**Demonstration of generators:** Demonstration of basic generators likeAudio oscillator, Function generators, Pulse generators, RF generators, types of waveforms like sine wave, square wave, triangular waves with symmetrical and asymmetrical types to be observed by the help of CRO.	08

5	**Demonstration of CRO:** Demonstration of CRO with front panel diagram for single trace oscilloscope, familiarization of all the knobs in the CRO with their function, measurement of Time, Amplitude, Frequency of a wave, measurement of Phase with Lissajous Figures.	08

References:

1. A course in Electronics and Instrumentations - by A .K. Sawhney.

2. **Principles of electrons – by V.K. Mehta**

3. **Fundamentals of electrical &electronic engineering by B L Theraja.**

4. **Electrical circuits &application - B.Grob.**

CBCS Question Paper Pattern for UG Semester End Examination with effect from the AY 2021-22

Languages /Discipline Core Courses (DSC) & Open ElectiveCourses (OEC)

Paper Code: **Paper Title:**

Time: 3 Hours **Max. Marks: 60**

Instruction: Answer all Sections

SECTION-A

1. Answer the following sub-questions, each sub-question carries **ONE** mark. (10X1=10)

a).

b).

c).

d).

e).

f).

g).

h).

i).

j).

Note for Section-A: Two sub-questions from each unit.

SECTION-B

Answer any **FOUR** of the following questions, each question carries **FIVE** marks. (4X5=20)

2.

3.

4.

5.

6.

7.

Note for Section-B: Minimum One question from each unit (Q No 2 to 6) and remaining one question from unit II to V (Q.No. 7)

SECTION-C

Answer any **THREE** of the following questions, each question carries **TEN** marks. (3X10=30)

8.

9.

10.

11.

12.

Note for Section- C: One question from each unit. Sub-questions such as 'a' and 'b' may be given fora question in section-C only.

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SEC & AECC Subjects

Paper Code: **Paper Title:**

Time: 1 Hours **Max. Marks: 30**

There shall be Theory examinations of **Multiple Choice Based Questions [MCQs]with Question Paper of A, B, C and D Series** at the end of each semester for **AECCs (Environmental Studies and (ii) Constitution of India) and SECs (SEC-1: Digital Fluency, SEC-2: Artificial Intelligence, SEC-3: Cyber Security and SEC-4: Societal Communication) for the duration of One hour (First Fifteen Minutes for the Readiness of OMR and remaining Forty- Five Minutes for Answering thirty Questions). The Answer Paper is of OMR (Optical Mark Reader) Sheet.**

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B.Sc. Electronics Labs Semester End Examination Evaluation Scheme

Max. Marks: 25

Sl.No.	Attribute	Marks
1	Laboratory Record	05
2	Circuit Diagram and Tabular column	05
3	Connection and Performance	05
4	Graph and Calculation	05
5	Result	02
6	Viva Voce	03
	Total	**25**

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