M.S. Ramaiah College of Arts, Science and Commerce

Lesson Plan-Academic Year-2021-2022

Name of the Faculty- Dr. Savitha G **Department: Biotechnology**
Course: Cell Biology and Genetics **Course Code: BTC 101**
Class Strength: 145 **Semester: I**

Unit 1

Hours	Sections		Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B	Day 1	History of Genetics: Introduction and brief history of Genetics, Mendelian theory	ICT- Power point, Chalk and talk
2	A	B	Day 2	Law of segregation and	ICT- Power point, Chalk and talk
3	A	B	Day 3	Independent Assortment	ICT- Power point, Chalk and talk
4	A	B	Day 4	Dominance and Incomplete Dominance and Co-Dominance	ICT- Power point, Chalk and talk
5	A	B	Day 5	Back Cross and Test cross, Deviation in Mendelian Inheritance	ICT- Power point, Chalk and talk
6	A	B	Day 6	Complementary gen Interaction	ICT- Power point, Chalk and talk
7	A	B	Day 7	Supplementary gene Interaction	ICT- Power point, Chalk and talk
8	A	B	Day 8	Maternal Inheritance, Plastid Inheritance in Mirabilis	ICT- Power point, Chalk and talk
9	A	B	Day 9	Petite Characters of Yeast and Kappa particles in paramecium	ICT- Power point, Chalk and talk
10	A	B	Day 10	Sex –Linked Chromosome theory of Inheritance	ICT- Power point, Chalk and talk
11	A	B	Day 11	Multiple Factors - Skin Colors in Human beings	ICT- Power point, Chalk and talk
12	A	B	Day 12	Epitasis - Plumage	ICT- Power point, Chalk and talk
13	A	B	Day 13	Alternative forms of gene responsible for range of traits in the population	ICT- Power point, Chalk and talk
14	A	B	Day 14	Multiple allelism: Blood group on human beings	ICT- Power point, Chalk and talk

Faculty

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Unit 2

Hours	Sections		Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B	Day 1	Introduction to Linkage, Definition and Examples	ICT- Power point, Chalk and talk
2	A	B	Day 2	Coupling and Repulsion hypothesis	ICT- Power point, Chalk and talk
3	A	B	Day 3	Linkages in Maize and Drosophila. Mechanism of crossing over and its importance	ICT- Power point, Chalk and talk
4	A	B	Day 4	Chromosome mapping	ICT- Power point, Chalk and talk
5	A	B	Day 5	Mutations : Introduction and examples Types of mutation and its characteristics	ICT- Power point, Chalk and talk
6	A	B	Day 6	Spontaneous mutation	ICT- Power point, Chalk and talk
7	A	B	Day 7	Induced mutation	ICT- Power point, Chalk and talk
8	A	B	Day 8	Physical and chemical mutagens	ICT- Power point, Chalk and talk
9	A	B	Day 9	Mutations in plant, animal and microbes for economic benefits	ICT- Power point, Chalk and talk
10	A	B	Day 10	Chromosomal variations. A general account of structural abbreviation and chromosomal evolution of wheat and cotton	ICT- Power point, Chalk and talk
11	A	B	Day 11	Sex determination in plants and animals: Concepts of allosomes and autosomes	ICT- Power point, Chalk and talk
12	A	B	Day 12	Human Genetics: karyotype in man, inherited disorders,	ICT- Power point, Chalk and talk
13	A	B	Day 13	Allosomal: example – klinefelter syndrome and Turmer syndrome	ICT- Power point, Chalk and talk
14	A	B	Day 14	Autosomal: example – (Down syndrome and Cri-du-chat syndrome)	ICT- Power point, Chalk and talk

Faculty

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M.S. RAMAIAH COLLEGE OF ARTS SCIENCE ANDCOMMERCE

Lesson Plan

Academic Year -2021-2022 (May2021-SEP 2022)

Name of the Faculty: **Dr. Jayashree D.R.**

Course Code:BTH204: Environmental Biotechnology
Semester: II

Course: M.Sc., Biotechnology
Class Strength: 46
Batch: 2020-2022

CO1 Environmental problems, impacts and remedies
CO2 Biodiversity and its status
CO3 Bioremediation in various industries
CO4 Biodiesel and Biofuel from biowastes
CO5 Conservation of natural resources

Sl No	Day May-Oct 2021	Topics to be Covered	Pedagogy used
1	Day 1	**Unit I: Environment and monitoring Hours:08** Introduction, renewable and non-renewablesources of energy	PPT,Seminar, Group Discussion
2	Day 2	Environmental pollution- water pollution	PPT,Seminar, Group Discussion
3	Day 3	Soil pollution	PPT,Seminar, Group Discussion
4	Day 4	Air pollution-sources	PPT,Seminar, Group Discussion
5	Day 5	Xenobiotic compounds and their sources	PPT,Seminar, Group Discussion
6	Day 6	Bio magnification, Bio indicators	PPT,Seminar, Group Discussion
7	Day 7	Biomonitoring	PPT,Seminar, Group Discussion
8	Day 8	Biosensors and biochips	PPT,Seminar, Group Discussion

9	Day 9	**Unit 2: Water Management and water treatment** **Hours:12** Water as a scarce natural resource	PPT,Seminar, Group Discussion
10	Day 10	Water management including rain water harvesting	PPT,Seminar, Group Discussion
11	Day 11	Waste water characteristics	PPT,Seminar, Group Discussion
12	Day 12	Waste water Treatment-Chart of 3 different types & subtypes	PPT,Seminar, Group Discussion
13	Day 13	Physical-Preliminary & Primary	PPT,Seminar, Group Discussion
14	Day 14	Physical- Tertiary treatment	PPT,Seminar, Group Discussion
15	Day 15	chemical Treatment	PPT,Seminar, Group Discussion
16	Day 16	Biological processes. Aerobic processes; Activated sludge,	PPT,Seminar, Group Discussion
17	Day 17	Biological-oxidation ditches, trickling filter, oxidation ponds	PPT,Seminar, Group Discussion
18	Day 18	Anaerobic processes; Anaerobic digestion, anaerobic filters, anaerobic sludge	PPT,Seminar, Group Discussion
19	Day 19	membrane bioreactors, Reverse osmosis and ultra filtration.	PPT,Seminar, Group Discussion
20	Day 20	Treatment of industrial effluents.	PPT,Seminar, Group Discussion
21	Day 21	**Unit 3: Bio mining and Biodiesel** **Hours:04** Bioleaching of ores to retrieve scarce metals_	PPT,Seminar, Group Discussion
22	Day 22	Bio-mining_	PPT,Seminar, Group Discussion
23	Day 23	Biodiesel production from Jatropa,	PPT, Video, Chalk & Talk,Utube
24	Day 24	Biodiesel production from Pongamia and Castor	PPT, Video, Chalk & Talk,Utube
25	Day 25	**Unit 4: Bioremediation** **Hours:08** Concept and principles of Bioremediation	PPT,Seminar, Group Discussion
26	Day 26	Bioremediation using microbes	PPT,Seminar, Group Discussion
27	Day 27	In situ and ex situ bioremediation,	PPT,Seminar, Group Discussion

28	Day 28	bio sorption and bioaccumulation of heavy metals;	PPT,Seminar, Group Discussion
29	Day 29	Phytoremediation,	PPT,Seminar, Group Discussion
30	Day 30	bioremediation of xenobiotic (heavy metals, pesticides,oil slicks, plastic).	PPT,Seminar, Group Discussion
31	Day 31	Bioremediation of soil and water contaminated with hydrocarbons	PPT,Seminar, Group Discussion
32	Day 32	surfactants, biofilms.	PPT,Seminar, Group Discussion
33	Day 33	**Unit 5: Bio-waste treatment Hours: 12** Microorganisms involved in the degradation of plant fiber cell wall,	PPT,Seminar, Group Discussion
34	Day 34	Microorganisms involved in the degradation of lignin, fungal de-lignification and pulping of wood	PPT,Seminar, Group Discussion
35	Day 35	Problems in pulp and paper processes solving by enzymes or fungi.	PPT,Seminar, Group Discussion
36	Day 36	Hemicellulases in pulp bleaching	PPT,Seminar, Group Discussion
37	Day 37	Solving slime problem in the pulp and paper	PPT,Seminar, Group Discussion
38	Day 38	Reduction of organochlorine compounds in bleach plant effluents.	PPT,Seminar, Group Discussion
39	Day 39	**Solid wastes:** Sources and management,	PPT,Seminar, Group Discussion
40	Day 40	Waste as a source of energy.	PPT,Seminar, Group Discussion
41	Day 41	Production of oils and fuels from solid waste,	PPT,Seminar, Group Discussion
42	Day 42	Composting,	PPT,Seminar, Group Discussion
43	Day 43	Vermiculture,	PPT,Seminar, Group Discussion
44	Day 44	Biogas production, methanol production from	PPT,Seminar, Group Discussion
45	Day 45	**Unit 6: Global environmental problems Hours:08** Introduction, definition of Global environmental problems	PPT,Seminar, Group Discussion
46	Day 46	Global warming, their impact and management	PPT,Seminar, Group Discussion
47	Day 47	Ozone depletion, their impact and management	PPT,Seminar, Group Discussion

48	Day 48	UV-B, green house effects, their impact and management	PPT,Seminar, Group Discussion
49	Day 49	Acid rain, their impact and management	PPT,Seminar, Group Discussion
50	Day 50	Biodiversity and its conservation and status	PPT,Seminar, Group Discussion
51	Day 51	Hotspots and Red data book	PPT,Seminar, Group Discussion
52	Day 52	Acid rain, their impact and management	PPT,Seminar, Group Discussion

Jayashree

Faculty

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan

Academic Year -2021-2022(May2021-SEP 2022)

Name of the Faculty: **Dr. Jayashree D.R.**

Course Code:BTH404: Bioprocess Engineering & Medical Biotechnology

Course: **M.Sc., Biotechnology**

Class Strength:40

Semester: IV

Batch:2019-2021

CO1 To learn the significant features of the biochemical catalysts.

CO2 It illustrates the enzyme catalysis, kinetics and regulatory aspects.

CO3 Immunology and its applications in diagnostic and therapeutic

CO4 Learning techniques involved in immunological aspects in biological samples

Sl No	Day May-Oct 2021	Topics to be Covered	Pedagogy used
1	Day 1	Study of fermentor-Demonstration	PPT,objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
2	Day 2	Production and isolation of antibiotics (*Pencillin and Streptomycin*)	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
3	Day 3	Production and analysis of Single cell protein (*Spirulina and yeast*)	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
4	Day 4	Production of yoghurt and estimation of lactic acid at different time intervals	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
5	Day 5	Production of wine. Estimation of percentage of alcohol, total acidity & volatile acidity in wine.	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making

6	Day 6	Production and assay of α-amylase from *Aspergillus niger*	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
7	Day 7	Purification and assay of α amylase by simple precipitation using sodium sulphate, poly amines and organic solvents and immobilization	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
8	Day 8	Blood urea analysis by Diacetyl monoxyme method	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
9	Day 9	Analysis of acid and alkaline phosphatase from serum samples	PPT Charts, Chalk and Talk, objects,Videos,Conducting, Designing, Desiring, Exploring,Sense Making
16	Day 16	Visit to industries/Biotech park-report to be submitted along with the record	Visit with students to Industies. Exploring, Designing, Desiring, Sense Making,

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE
Lesson Plan
Academic Year -2021-2022(Oct2021-March 2022)

Name of the Faculty: **Dr. Jayashree D.R.** **Department:Biotechnology/Genetics**

Course: M.Sc., Biotechnology
Class Strength: 46

Course Code:BTH301: Plant & Agricultural Biotechnology
Semester: III

CO1 Basic Concepts of Plant Tissue Culture and its Applications
CO2 Callusing, Rooting, Shooting and Hardening.
CO3 Role of Biofertilizers mycorrhiza in growth of crop plants Recycling of biodegradable wastes
CO4 Plant Hybridisation Technique. Selection of hybrid.
CO5 Crop improvement through Biotechnology

Sl No	Day Oct 2021-April 2021	Topics to be Covered	Pedagogy used
1	Day 1	**Unit 1: Plant Tissue Culture:** **Hours: 08** Scope and Importance of PTC	PPT,Seminar, Group Discussion, Chalk & Talk
2	Day 2	Media composition and types, hormones and growth regulators,	PPT,Seminar, Group Discussion, Chalk & Talk
3	Day 3	Explants for organogenesis, soma clonal variation and cell line selection,	PPT,Seminar, Group Discussion, Chalk & Talk
4	Day 4	Production of haploid plants and homozygous cell lines.	PPT,Seminar, Group Discussion, Chalk & Talk

5	Day 5	Micro propagation, somatic embryogenesis, protoplast culture and somatic hybridization	PPT,Seminar, Group Discussion, Chalk & Talk
6	Day 6	Selection and maintenance of cell lines,	PPT,Seminar, Group Discussion, Chalk & Talk
7	Day 7	Cryopreservation, germplasm collection and conservation,	PPT,Seminar, Group Discussion, Chalk & Talk
8	Day 8	Plant tissue culture certification	PPT,Seminar, Group Discussion, Chalk & Talk
9	Day 9	**Unit 2: Plant Transformation Techniques: Hours: 10** Mechanism of DNA transfer -Agro bacterium mediated gene transfer,	PPT,Seminar, Group Discussion, Chalk & Talk
10	Day 10	Ti and Ri plasmids as vectors,	PPT,Seminar, Group Discussion, Chalk & Talk
11	Day 11	35S promoter, genetic markers,	PPT,Seminar, Group Discussion, Chalk & Talk
12	Day 12	Role of virulence genes; design of expression Vectors	PPT,Seminar, Group Discussion, Chalk & Talk
13	Day 13	35S promoter, genetic markers, Reporter genes; viral vectors	PPT,Seminar, Group Discussion, Chalk & Talk
14	Day 14	Direct gene transfer methods-particle bombardment, electroporation & microinjection	PPT,Seminar, Group Discussion, Chalk & Talk
15	Day 15	Binary vectors	PPT,Seminar, Group Discussion, Chalk & Talk
16	Day 16	Plasmid vectors-pBluescript IIKs, pBin19,pGreen vectors,	PPT,Seminar, Group Discussion, Chalk & Talk
17	Day 17	Transgene stability	PPT,Seminar, Group Discussion, Chalk & Talk
18	Day 18	Gene silencing.	PPT,Seminar, Group Discussion, Chalk & Talk
19	Day 19	**Unit 3: Metabolic Engineering Of Plants: Hours:10** Plant cell culture for the production of useful chemicals and secondary metabolites	PPT,Seminar, Group Discussion, Chalk & Talk

20	Day 20	Hairy root culture,	PPT,Seminar, Group Discussion, Chalk & Talk
21	Day 21	Biotransformation,Elicitation	PPT,Seminar, Group Discussion, Chalk & Talk
22	Day 22	Pigments, flavanoids, alkaloids;	PPT,Seminar, Group Discussion, Chalk & Talk
23	Day 23	Mechanism and manipulation of shikimate	PPT,Seminar, Group Discussion, Chalk & Talk
24	Day 24	Production of Industrial enzymes	PPT,Seminar, Group Discussion, Chalk & Talk
25	Day 25	Biodegradable plastics	PPT,Seminar, Group Discussion, Chalk & Talk
26	Day 26	Therapeutic proteins,	PPT,Seminar, Group Discussion, Chalk & Talk
27	Day 27	Edible vaccines and	PPT,Seminar, Group Discussion, Chalk & Talk
28	Day 28	Antibiotics using transgenic technology	PPT,Seminar, Group Discussion, Chalk & Talk
29	Day 29	**Unit 4: Plant Development: Hours: 06** Plant growth regulators	PPT,Seminar, Group Discussion, Chalk & Talk
30	Day 30	Auxin, gibberlins, cytokinins, abscicic acid, acetylene	PPT,Seminar, Group Discussion, Chalk & Talk
31	Day 31	Biological nitrogen fixation, importance and mechanism.	PPT,Seminar, Group Discussion, Chalk & Talk
32	Day 32	Biofertilizers-types,production, VAM, Rhizobium, Mycorhiza,	PPT,Seminar, Group Discussion, Chalk & Talk
33	Day 33	Azotobacter, Actinorhiza	PPT,Seminar, Group Discussion, Chalk & Talk
34	Day 34	Vermicomposting technology, Biopesticides.	PPT,Seminar, Group Discussion, Chalk & Talk
35	Day 35	**Unit 5: GM TechnologHours: 10** Crop improvement, productivity, performance and fortification of agricultural products-Bt cotton, Bt brinjal.	PPT,Seminar, Group Discussion, Chalk & Talk
36	Day	Herbicide resistance, Viral resistance.	PPT,Seminar, Group

	36		Discussion, Chalk & Talk
37	Day 37	Bacterial resistance, Fungal resistance crops.	PPT,Seminar, Group Discussion, Chalk & Talk
38	Day 38	Golden rice and transgenic sweet potato	PPT,Seminar, Group Discussion, Chalk & Talk
39	Day 39	Strategies for engineering stress tolerance	PPT,Seminar, Group Discussion, Chalk & Talk
40	Day 40	transgenic plants;	PPT,Seminar, Group Discussion, Chalk & Talk
41	Day 41	Current status of transgenic plants in India and other countries	PPT,Seminar, Group Discussion, Chalk & Talk
42	Day 42	Ethical issues associated with GM crops andGM food; labeling of GM plants and products.	PPT,Seminar, Group Discussion, Chalk & Talk
43	Day 43	Importance of integrated pest management and terminator gene technology.	PPT,Seminar, Group Discussion, Chalk & Talk
44	Day 44	Environmental impact of herbicide resistance crops and super weeds	PPT,Seminar, Group Discussion, Chalk & Talk
45	Day 45	**Unit 6: Post-HarvestTechnology: Hours:08** RNAi and antisense	PPT,Seminar, Group Discussion, Chalk & Talk
46	Day 46	RNA technology for extending shelf life of fruits and flowers	PPT,Seminar, Group Discussion, Chalk & Talk
47	Day 47	ACC synthase gene	PPT,Seminar, Group Discussion, Chalk & Talk
48	Day 48	Polygalactoronase	PPT,Seminar, Group Discussion, Chalk & Talk
49	Day 49	Delay of softening and ripening of fleshy fruits	PPT,Seminar, Group Discussion, Chalk & Talk
50	Day 50	Tomato, Banana, Watermelons	PPT,Seminar, Group Discussion, Chalk & Talk
51	Day 51	Post-harvest protection of	PPT,Seminar, Group Discussion, Chalk & Talk
52	Day 52	Cereals, Millets and Pulses.	PPT,Seminar, Group Discussion, Chalk & Talk

M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE
Lesson Plan
Academic Year -2021-2022(Oct2021-March 2022)

Name of the Faculty: **Dr. Jayashree D.R.**

Department:Biotechnology/Genetics
Course Code:BTH305:
Plant,Agricultural & Animal Biotechnology
Semester: III

Course: M.Sc., Biotechnology
Class Strength: 46
Batch 2020-2022

CO1 Basic Concepts of Plant Tissue Culture and its Applications
CO2 Callusing, Rooting, Shooting and Hardening.
CO3 Role of Biofertilizers mycorrhiza in growth of crop plants
CO4 Plant Hybridisation Technique& Crop Imporvement.
CO5 Study Basic Concept in Animal Cell Culture.

Sl.No.	Day Oct 2021-April 2021	Topics to be covered	Pedogogy
1	Day 1	Preparation of plant tissue culture media & organ culture (Shoot tip, nodal & leaf culture)	Exploring, Sense making, Designing, PPT, Objects.
2	Day 2	Callus culture initiation and regeneration	Exploring, Sense making, Designing, PPT, Objects.
3	Day 3	Anther culture for the production of haploids	Exploring, Sense making, Designing, PPT, Objects.
4	Day 4	Isolation, culture and fusion of protoplast	Exploring, Sense making, Designing, PPT, Objects.
5	Day 5	Isolation of plant genomic DNA from pea shoot tip/cauliflower by CTAB method	Exploring, Sense making, Designing, PPT, Objects.
6	Day 6	*Agrobacterium* culture selection for transformants	Exploring, Sense making,

			Designing, PPT, Objects.
7	Day 7	Suspension culture & production, separation & estimation of secondary metabolites: β -carotene from carrot & Anthocyanin from beet root	Exploring, Sense making, Designing, PPT, Objects.
8	Day 8	Study of AMF: Isolation of spores, arbuscules & vesicles from roots	Exploring, Sense making, Designing, PPT, Objects.
9	Day 9	AMF Culture	Exploring, Sense making, Designing, PPT, Objects.
10	Day 10	Organic farming and Mushroom cultivation	Exploring, Sense making, Designing, PPT, Objects.
11	Day 11	Study and culture of biocontrol agents: (*Trichoderma viridae, T.harzianum, Aspergillus awamori*)	Exploring, Sense making, Designing, PPT, Objects.
12	Day12	Animal cell culture: Preparation of (serum & non serum supplemented) media, cell culture, assessment of viability & counting using Trypan blue exclusion method	Exploring, Sense making, Designing, PPT, Objects.
13	Day 13	Primary culture of fibroblast cells/Liver cells/Testis Leydig cells	Exploring, Sense making, Designing, PPT, Objects.
14	Day 14	Determination of GST enzymes activity in cytotoxicity induced cells	Exploring, Sense making, Designing, PPT, Objects.
15	Day 15	Estimation of lipid peroxides(Malondialdehyde) in cytotoxicity induced cells	Exploring, Sense making, Designing, PPT, Objects.
16	Day 16	MTT assay for cell viability and growth	Exploring, Sense making, Designing, PPT, Objects.

Jayashree

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr. Geetika Pant

Department: Biotechnology

Course: B.Sc. Biotechnology (Plant Biotechnology)

Course Code: BTT601

Class Strength: 148 (Sec A & B)

Semester: VI EVEN

CO1 To understand the concept of Invitro methods in plant tissue culture

CO2 To study various tissue culture techniques and its applications

CO3 To analyze the practical aspects of culture techniques

CO4 To study the invitro production of secondary metabolites

CO5 To understand the significance of IPR in Biotechnology

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Unit 1: Invitro methods in PTC	Chalk and talk, PPT
1	2	Aseptic techniques	Chalk and talk, PPT
1	3	Aseptic techniques	Chalk and talk, PPT
1	4	Nutrient Media used in PTC	Chalk and talk, PPT
1	5	GR's: Auxin and Cytokinin	Chalk and talk, PPT
1	6	GR: Gibberallins	Chalk and talk, PPT
1	7	Unit 2: Ovary culture	Chalk and talk, PPT
1	8	Ovule Culture	Chalk and talk/PPT
1	9	Unit 3: Micro propagation-Intro and Mechanism	Chalk and talk/PPT
1	10	Stages of MP	Chalk and talk/PPT
1	11	Applications of MP	Chalk and talk/PPT
1	12	Advantages, Disadvantages, Examples	Chalk and talk/PPT
1	13	Unit 4: Anther, embryo and endosperm culture	Chalk and talk/PPT

1	14	Callus culture	Chalk and talk/PPT
1	15	Somatic embryogenesis: mechanism & stages	Chalk and talk/PPT
1	16	Applications, examples	Chalk and talk/PPT
1	17	Unit5: Protoplast isolation technique- Mechanical & Enzymatic methods	Chalk and talk/PPT
1	18	Purification, viability test and culture technique	Chalk and talk/PPT
1	19	Somatic Hybridization technique- Chemofusion	Chalk and talk/PPT
1	20	Somatic Hybridization technique- Electrofusion	Chalk and talk/PPT
1	21	Advantages, disadvantages, examples	Chalk and talk/PPT
1	22	Cybrids	Chalk and talk/PPT
1	23	Unit6: Introduction to Somaclonal variations, nomenclature and types	Chalk and talk/PPT
1	24	Mechanism and identification of variants	Chalk and talk/PPT
1	25	Applications, advantages, disadvantages of SV	Chalk and talk/PPT
1	26	Unit 7: Introduction, definition, difference between sec metabolites and other products	Chalk and talk/PPT
1	27	Mechanism of shikonin production	Chalk and talk/PPT
1	28	Applications of sec metabolites	Chalk and talk/PPT
1	29	Unit11: IPR, Patent, Trade secrets	Chalk and talk/PPT
1	30	Copyright, trademark, PGR, GAAT, TRIPS	Chalk and talk/PPT

Faculty

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr. Geetika Pant **Department: Biotechnology**

Course: B.Sc. Biotechnology (Industrial Biotechnology) **Course Code: BTT603**

Class Strength: 148 (Sec A & B) **Semester: VI EVEN**

CO1 To understand the concept of fermented foods

CO2 To study various mass culture techniques for algae and its applications

CO3 To learn the production of plant cell suspension culture

CO4 To study the practical applications of suspension cultures at industrial levels

CO5 To understand the significance of microbial polysacc and its industrial applications

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Unit 9: Yoghurt and buttermilk, Idli: Industrial production	Chalk and talk, PPT
1	2	Dosa, cheese, Tempeh: Industrial production	Chalk and talk, PPT
1	3	Microbial foods: SCO	Chalk and talk, PPT
1	4	SCP: Spirulina	Chalk and talk, PPT
1	5	Single cell oil production	Chalk and talk, PPT
1	6	Unit 11: Mass culture of algae- production with raw materials	Chalk and talk, PPT
1	7	Applications and commercial production of spirulina	Chalk and talk, PPT
1	8	Unit10: Intro on plant cell suspension culture	Chalk and talk/PPT
1	9	Capsacin: Plant cell suspension culture	Chalk and talk/PPT
1	10	Food additives: saffron	Chalk and talk/PPT
1	11	Industrial applications	Chalk and talk/PPT
1	12	Unit 12: Microbial polysacc- Xanthum gum production	Chalk and talk/PPT

1	13	PHA production	Chalk and talk/PPT
1	14	Industrial applications of MPS and polyesters	Chalk and talk/PPT

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr. Geetika Pant

Department: Biotechnology

Course: B.Sc. Biotechnology (Animal Biotechnology)

Course Code: BTT503

Class Strength: 148 (Sec A & B)

Semester: V ODD

CO1 To understand the concept of Invitro methods in animal tissue culture

CO2 To study various primary and secondary tissue culture techniques and its applications

CO3 To analyze the practical aspects of cell lines & transgenics

CO4 To study the transfection techniques in animal cell lines

CO5 To understand the significance of Animal tissue culture

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Unit 1: Intro to ABT, culture media and conditions	Chalk and talk
1	2	Plasma clot, Tissue engineering	Chalk and talk
1	3	Importance of serum in media	Chalk and talk
1	4	Chemically defined media	Chalk and talk
1	5	GF's: EGF, FGF, PDGF, IL1, IL2	Chalk and talk
1	6	Gf's: NGF, Erythropoietin	Chalk and talk
1	7	Unit 2: Primary culture cell lines and cloning	Chalk and talk
1	8	Isolation techniques, enzymatic and mechanical disaggregation	Chalk and talk/PPT
1	9	Secondary culture: transformed cell lines and continuous cell lines	Chalk and talk/PPT
1	10	Characterization of cell lines by MTT assay	Chalk and talk/PPT
1	11	Unit 3: Transfection of animal cell lines, HAT selection	Chalk and talk/PPT
1	12	Selectable markers and transplantation of cultured cells	Chalk and talk/PPT
1	13	Expression of cloned proteins in animal cell and expression vectors	Chalk and talk/PPT
1	14	Processing of expressed proteins	Chalk and talk/PPT

1	15	Processing of expressed proteins	Chalk and talk/PPT
1	16	Unit4: Applications of ATC- overview	Chalk and talk/PPT
1	17	Vaccine production in animal cells	Chalk and talk/PPT
1	18	Monoclonal Ab's: production and applications	Chalk and talk/PPT
1	19	Transgenic animals- Tech and applications	Chalk and talk/PPT
1	20	Transgenic mice and sheep	Chalk and talk/PPT

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M.S. Ramaiah College of Arts, Science and Commerce

Lesson Plan-Academic Year-2021-2022

Name of the Faculty : **Dr. Lakshmi Kanth R N** **Department** : **Biotechnology**
Course : **Animal Biotechnology** **Course Code** : **BTP 302**
Class Strength : **46** **Semester** : **III**
Programme : **M.Sc. Biotechnology**

CO1: The student learns about the laboratory design, layout, equipments, media, culture and maintenance of primary and established cell lines.
CO2: Learns about the stem cell culture and their applications. Understands tissue engineering, three dimensional culture and its applications
CO3: Learns the methods of production of transgenic animals and animal cloning and its applications
CO4: Learns the different applications of animal biotechnology
CO5: Understands the ethical issues associated with the application of biotechnology to all the organisms in the environment and the Biosafety management

Sl.No.	Hours	Date of Completion	Topics to be Covered	Pedagogy Used
1.	1	Day 1	Introduction, cell culture, laboratory-design, layout and maintenance.	PPT, Chalk & Talk
2.	1	Day 2	Equipment and Instrumentation.	PPT, Chalk & Talk
3.	1	Day 3	Methods of sterilization, types of culture media,	PPT, Chalk & Talk
4.	1	Day 4	Composition &, preparation of media	PPT, Chalk & Talk
5.	1	Day 5	Metabolic functions: Role of CO2, Serum,	PPT, Chalk & Talk
6.	1	Day 6	Supplements-growth factors (EGF, PDGF, NGF, Gap-43).	PPT, Chalk & Talk
7.	1	Day 7	Serum and protein free defined media.	PPT, Chalk & Talk
8.	1	Day 8	Culture and maintenance of primary culture	PPT, Chalk & Talk
9.	1	Day 9	Culture and maintenance of established cell lines.	PPT, Chalk & Talk
10.	1	Day 10	Biology of cultured cells,Culture environment.	PPT, Chalk & Talk
11.	1	Day 11	Cell adhesion, cell proliferation and differentiation.	PPT, Chalk & Talk
12.	1	Day 12	Characterization of cultured cells, viability,	PPT, Chalk & Talk
13.	1	Day 13	Cytotoxicity, growth parameters	PPT, Chalk & Talk
14.	1	Day 14	Cell death and Apoptosis.	PPT, Chalk & Talk
15.	1	Day 15	Expression of culture efficiency.	PPT, Chalk & Talk

16.	1	Day 16	Scope, embryonic and adult stem cells, properties, identification,	PPT, Chalk & Talk
17.	1	Day 17	Stem cells culture, techniques and their applications in modern clinical sciences.	PPT, Chalk & Talk
18.	1	Day 18	Tissue engineering,	PPT, Chalk & Talk
19.	1	Day 19	Biomaterials used in tissue engineering,	PPT, Chalk & Talk
20.	1	Day 20	Three dimensional culture	PPT, Chalk & Talk
21.	1	Day 21	Transplantation of engineered cells.	PPT, Chalk & Talk
22.	1	Day 22	Tissue engineering - skin, bone and neuronal tissues.	PPT, Chalk & Talk
23.	1	Day 23	Methods involved in the production of transgenic animals,	PPT, Chalk & Talk
24.	1	Day 24	Methods involved in the production of transgenic animals,	PPT, Chalk & Talk
25.	1	Day 25	Importance and applications of transgenic animals.	PPT, Chalk & Talk
26.	1	Day 26	Importance and applications of transgenic animals.	PPT, Chalk & Talk
27.	1	Day 27	Gene knock out and mice models for tackling human diseases.	PPT, Chalk & Talk
28.	1	Day 28	Gene knock out and mice models for tackling human diseases.	PPT, Chalk & Talk
29.	1	Day 29	Methods of cloning and their importance with reference to domestic animals.	PPT, Chalk & Talk
30.	1	Day 30	Methods of cloning and their importance with reference to domestic animals.	PPT, Chalk & Talk
31.	1	Day 31	IVF- technology for live stock.	PPT, Chalk & Talk
32.	1	Day 32	IVF- technology for humans	PPT, Chalk & Talk
33.	1	Day 33	Poultry industry- Improvement of biomass, disease resistant, recombinant vaccines for poultry.	PPT, Chalk & Talk
34.	1	Day 34	Live stock-pharming products.	PPT, Chalk & Talk
35.	1	Day 35	Pharmaceutical products produced by mammalian cells - plasminogen activator,	PPT, Chalk & Talk
36.	1	Day 36	erythropoietin,	PPT, Chalk & Talk
37.	1	Day 37	blood clotting factors,	PPT, Chalk & Talk
38.	1	Day 38	glycoprotein hormones,	PPT, Chalk & Talk
39.	1	Day 39	interleukins & Interferons,	PPT, Chalk & Talk
40.	1	Day 40	Cell culture based vaccines	PPT, Chalk & Talk

41.	1	Day 41	Bioethics in Biodiversity, ethics of resource management, impact of patenting on biodiversity rich developing countries.	PPT, Chalk & Talk
42.	1	Day 42	Ethical issues associated with consumptions of genetically modified foods.	PPT, Chalk & Talk
43.	1	Day 43	Ethical implication of human genome project, international ethical and legal issues connected with human genome diversity research. Genetic studies of ethnic races.	PPT, Chalk & Talk
44.	1	Day 44	Use of cell cultures as alternative for animal models for research. Testing of drugs on human volunteers	PPT, Chalk & Talk
45.	1	Day 45	use of animals for research and testing;	PPT, Chalk & Talk
46.	1	Day 46	Animal and human cloning- ethical and social issues, organ transplantation and xeno transplantation	PPT, Chalk & Talk
47.	1	Day 47	The Cartagena protocol on biosafety. Biosafety management: Key to the environmentally responsible use of biotechnology. Ethical implications of biotechnological products and techniques.	PPT, Chalk & Talk
48.	1	Day 48	Social and ethical implications of biological weapons.	PPT, Chalk & Talk
49.	1	Day 49	Biosafety regulations and national and international guidelines with regard to rDNA technology, transgenic science, GM crops,	PPT, Chalk & Talk
50.	1	Day 50	Experimental protocol approvals, levels of containment.	PPT, Chalk & Talk
51.	1	Day 51	Guidelines for research in transgenic plants. Good manufacturing practice and Good lab practices (GMP and GLP).	PPT, Chalk & Talk
52.	1	Day 52	Use of genetically modified organisms (crippling organisms) and their release to environment.	PPT, Chalk & Talk

Faculty

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M.S. Ramaiah College of Arts, Science and Commerce

Lesson Plan-Academic Year-2021-2022

Name of the Faculty	**: Dr. Lakshmi Kanth R N**	**Department**	**: Biotechnology**
Course	**: Medical Biotechnology**	**Course Code**	**: BTP 402**
Class Strength	**: 46**	**Semester**	**: IV**
Programme	**: M.Sc. Biotechnology**		

CO1: The student learns about the human diseases caused by different microorganism and the measures to control it.

CO2: Understanding the causes, methods of detection and treatment of cancer.

CO3: Understands the different human diseases and treatment of the genetic disorders.

CO4: Understands the methods of evaluation of different organ function tests.

CO5: Understands the synthesis of nanostructures and applications of nanomaterials

CO6: Understand the discovery and development of drugs and different therapies for treating the human diseases.

CO7: Understand the clinical research, clinical trials and ICH.

Sl.No.	Hours	Date of Completion	Topics to be Covered	Pedagogy Used
1.	1	Day 1	Microbial diseases in humans – mode of infection, symptoms, detection, epidemiology and control measures of diseases caused by Viruses – AIDS, Hepatitis	PPT, Chalk & Talk
2.	1	Day 2	Viruses – Rabies, HSV-1	PPT, Chalk & Talk
3.	1	Day 3	Bacteria-Typhoid, STD	PPT, Chalk & Talk
4.	1	Day 4	Bacteria-TB, Plague	PPT, Chalk & Talk
5.	1	Day 5	Fungi –Aspergillosis, Histoplasmosis	PPT, Chalk & Talk
6.	1	Day 6	Fungi – Cryptococcosis	PPT, Chalk & Talk
7.	1	Day 7	Protozoa –Malaria,	PPT, Chalk & Talk
8.	1	Day 8	Protozoa –Amoebiasis	PPT, Chalk & Talk
9.	1	Day 9	Introduction, types of tumors, pre-disposing factors.	PPT, Chalk & Talk
10.	1	Day 10	Cellular changes involved in tumor formation	PPT, Chalk & Talk
11.	1	Day 11	Genes associated with cancer [oncogenes, tumor suppressive genes etc.],	PPT, Chalk & Talk
12.	1	Day 12	Methods of tumor detection & tumor markers.	PPT, Chalk & Talk
13.	1	Day 13	Treatment of cancer- chemo therapy & radiotherapy	PPT, Chalk & Talk
14.	1	Day 14	Treatment of cancer- immunotherapy and gene therapy	PPT, Chalk & Talk
15.	1	Day 15	Symptoms and treatment of the genetically inherited diseases: PKU, Alkaptonuria	PPT, Chalk & Talk

16.	1	Day 16	Galactosemia, Von'Gierke disease	PPT, Chalk & Talk
17.	1	Day 17	Lesch-Nyhan syndrome	PPT, Chalk & Talk
18.	1	Day 18	Gout, Sickle cell anaemia	PPT, Chalk & Talk
19.	1	Day 19	Beta Thalasemia, Diabetes	PPT, Chalk & Talk
20.	1	Day 20	Liver, kidney, cardiac and gastric function tests	PPT, Chalk & Talk
21.	1	Day 21	Significance of biochemical markers: amino transferases, creatine kinase, LDH	PPT, Chalk & Talk
22.	1	Day 22	Amylase and γ-glutamyl trans-peptidase	PPT, Chalk & Talk
23.	1	Day 23	Introduction, types and synthesis of nanomaterials - Protein & DNA-based nano structures.	PPT, Chalk & Talk
24.	1	Day 24	Applications of nanomaterials - Nano biosensors	PPT, Chalk & Talk
25.	1	Day 25	Nanobiotechnology - Drug and gene delivery.	PPT, Chalk & Talk
26.	1	Day 26	Nanobiotechnology - Disease diagnostics.	PPT, Chalk & Talk
27.	1	Day 27	Nanobiotechnology - Cancer therapy	PPT, Chalk & Talk
28.	1	Day 28	Risk potential of nanomaterials.	PPT, Chalk & Talk
29.	1	Day 29	Drugs, drug receptors, relationship between drug concentration and response,	PPT, Chalk & Talk
30.	1	Day 30	Agonists, drug clearance, biological half life,	PPT, Chalk & Talk
31.	1	Day 31	drugs accumulation, basic concepts of toxic effect	PPT, Chalk & Talk
32.	1	Day 32	Gene therapy, barriers to gene delivery	PPT, Chalk & Talk
33.	1	Day 33	overview of inherited and acquired diseases for gene therapy	PPT, Chalk & Talk
34.	1	Day 34	Retro and adeno virus mediated gene transfer,	PPT, Chalk & Talk
35.	1	Day 35	liposome mediated gene delivery	PPT, Chalk & Talk
36.	1	Day 36	Cellular therapy; use of stem cells	PPT, Chalk & Talk
37.	1	Day 37	Recombinant therapy; erythropoietin, insulin analogs and its role in diabetes	PPT, Chalk & Talk
38.	1	Day 38	Streptokinase and urokinase in thrombosis	PPT, Chalk & Talk
39.	1	Day 39	Introduction, conventional drug design approaches, irrational Vs rational	PPT, Chalk & Talk
40.	1	Day 40	Lipinski's rule of five. ADME, calculation of LD 50 and ED 50	PPT, Chalk & Talk
41.	1	Day 41	Acute, sub acute and chronic toxicity studies. Irwin profile test	PPT, Chalk & Talk
42.	1	Day 42	Drug development process (preclinical, clinical and toxicological studies)	PPT, Chalk & Talk
43.	1	Day 43	Novel drug development approaches – QSAR (quantitative structure activity relationship)	PPT, Chalk & Talk
44.	1	Day 44	High throughput screening (HTS)	PPT, Chalk & Talk
45.	1	Day 45	Clinical research-Past, present and future	PPT, Chalk & Talk

46.	1	Day 46	Importance, Mile stones of regulations. FDA, US, Indian clinical research, global scenario of clinical research, Regulatory agency	PPT, Chalk & Talk
47.	1	Day 47	Designing clinical trials: History, principles, scheme for conducting clinical trials, planning	PPT, Chalk & Talk
48.	1	Day 48	Defining objectives, variables, study populations	PPT, Chalk & Talk
49.	1	Day 49	testable hypothesis, prediction of errors and bio-selection of appropriate study design, Execution steps	PPT, Chalk & Talk
50.	1	Day 50	Ethical issues in clinical research: introduction, codes, declaration and guidelines, Informed consent, special issues	PPT, Chalk & Talk
51.	1	Day 51	Roles and responsibilities of IRBS, issues with ethics review	PPT, Chalk & Talk
52.	1	Day 52	ICH-GCP: History of ICH, objectives, ICH structure, Guidelines, Future of ICH	PPT, Chalk & Talk

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr. Sowbhagya R
Course: M.Sc Biotechnology (Biochemistry)
Class Strength: 46

Department: Biotechnology
Course Code: 104
Semester: I

CO1 To understand the concept of Principles of Bioenergetics
CO2 To understand the concept of oxidative phosphorylation
CO3 To study the structure and functions of carbohydrates, amino acids and proteins
CO4 To study the structure and functions of lipids
CO5 To understand the structure and functions of nucleic acids

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Unit - 1 - Principles of Bioenergetics: Introduction, Laws of thermodynamics, Gibbs free energy, Relationship of standard free energy to enthalpy	Chalk and talk
1	2	entropy and equilibrium constant,	Chalk and talk
1	3	High energy compounds, ATP as universal	Chalk and talk
1	4	Electromotive force, Half reactions,	Chalk and talk
1	5	Redox potentials, Relationship of standard redox potential and standard free energy change	Chalk and talk
1	6	Standard redox potentials of some biologically important Half reactions	Chalk and talk
1	7	Unit - 2 -Oxidative phosphorylation - Electron transport chain, Electron transfer reactions in mitochondria, Electron carriers,	Chalk and talk/PPT
1	8	Ubiquinone, Cytochromes, Iron sulfur centers,	Chalk and talk/PPT
1	9	Methods to determine sequence of electron carriers	Chalk and talk/PPT
1	10	Fractionation of Multi enzyme complexes I, II, III, IV of Mitochondria	Chalk and talk/PPT
1	11	Inhibitors of enzyme complexes	Chalk and talk/PPT
1	12	Oxidative phosphorylation, ATP synthesis	Chalk and talk/PPT
1	13	Chemiosmotic model, Proton gradient,	Chalk and talk/PPT

1	14	Structure of ATP synthetase	Chalk and talk/PPT
1	15	Mechanism of ATP synthesis, Brown fat, Regulation of Oxidative phosphorylation	Chalk and talk/PPT
1	16	Unit - 3 Carbohydrates - Classification, structure and Properties of mono, oligo and polysacharides	Chalk and talk/PPT
1	17	Chirality and optical activity, stereoisomerism, cyclic structure of monosaccharide, (pyranoses and furanoses)	Chalk and talk/PPT
1	18	structures of glucose. absolute and relative configuration (D & L and R & S nomenclature)	Chalk and talk/PPT
1	19	Derived sugars- Sugar acids (Aldonic, Aldaric and Saccharic acids), Amino sugars.	Chalk and talk/PPT
1	20	Disaccharides-structures of Maltose, Lactose, Sucrose, Trehalose, Raffinose.	Chalk and talk/PPT
1	21	Polysaccharides structure and properties of homo and hetero polysaccharides.	Chalk and talk/PPT
1	22	Storage polysaccharides. (Starch, Glycogen, cellulose, chitin) Glycosamino glycans and glycoproteins.	Chalk and talk/PPT
1	23	Carbohydrate metabolism: Glycogenolysis, Glycogenesis, Coordinated regulation of Glycogen metabolism	Chalk and talk/PPT
1	24	Glycolysis-Energetics and Regulation, Fermentation reactions (Lactic acid and alcoholic fermentation),	Chalk and talk/PPT
1	25	Gluconeogenesis, Reciprocal regulation of Glycolysis and Gluconeogenesis,	Chalk and talk/PPT
1	26	Citric acid cycle- Energetics and regulation, Glyoxylate cycle. Pentose phosphate pathway	Chalk and talk/PPT
1	27	Unit 4- Amino acids and Proteins: Classification, structure and properties of amino acids, reactions of amino acids, peptide bond.	Chalk and talk/PPT
1	28	Classification of proteins- Structural organisations of proteins - primary, secondary	Chalk and talk/PPT
1	29	Tertiary and quaternary structural organisation of proteins	Chalk and talk/PPT
1	30	conformational analysis, Ramachandran's plot.	Chalk and talk/PPT
1	31	Thermodynamic aspects of protein folding	Chalk and talk/PPT
1	32	General aspects of amino acid metabolism: Transamination, Deamination	Chalk and talk/PPT

1	33	Decarboxylation,	Chalk and talk/PPT
1	34	basic glutamine and glutamic acid pathways	Chalk and talk/PPT
1	35	urea cycle and its regulation	Chalk and talk/PPT
1	36	Formation of uric acid	Chalk and talk/PPT
1	37	Unit 5- Lipids: Classification- Structure, properties, reactions and biological functions of lipids	PPT and Video
1	38	Phospholipids, Sphingo and glyco lipids	PPT and Video
1	39	Steroids-cholesterol-bile salts, steroid hormones.	PPT and Video
1	40	Metabolism of Lipids: Beta oxidation of Fatty acids-activation	PPT and Video
1	41	transport to mitochondria, Beta oxidation reactions	PPT and Video
1	42	Oxidation of unsaturated fatty acids	PPT and Video
1	43	Alpha and omega oxidation.	PPT and Video
1	44	Biosynthesis of saturated and unsaturated fatty acids	PPT and Video
1	45	Biosynthesis cholesterol.	PPT and Video
1	46	Biological functions of eicosanoids (prostaglandin, leucotrienes and thromboxane)	PPT and Video
1	47	Unit - 6 Nucleic acids - Structure and properties- Bases, Nucleosides, Nucleotides, Polynucleotides	PPT and Video
1	48	Nucleic acid metabolism: Biosynthesis of purines - Denovo pathways	PPT and Video
1	49	Biosynthesis of puries - Salvage pathways	PPT and Video
1	50	Biosyntheis of pyramidines - Denovo pathways	PPT and Video
1	51	Biosyntheis of pyramidines - Salvage pathways	PPT and Video
1	52	biodegradation of purines and pyrimidines	PPT and Video

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2020-21 (Even semester)

Name of the Faculty: Dr. Sowbhagya R **Department: Biotechnology**

Course: M.Sc Biotechnology (Bioprocess Engineering) **Course Code: 401**

Class Strength: 40 **Semester: IV**

CO1 To know the scope and importance of Bioprocess Engineering

CO2 To study the design and functions of bioreactors

CO3 To understand the fermentation process and downstream processing

CO4 To understand the concept of immobilization, biotransformation and some industrially important products

CO5 To know about Intellectual Property Rights (IPRs) and Entrepreneurship

Hours	Date of completion	Topics to be Covered	Pedagogy used
		Unit 1 **Introduction to Bioprocess Engineering**	
1	Day 1	Scope and importance of bioprocess engineering technology	PPT
1	2	Development and strain improvement of industrially important microorganisms	PPT
		Unit 2 - Bioreactors	
1	3	1. Typical structure of advanced Bioreactor and their working mechanism	PPT
1	4	2. Design features	PPT
1	5	3. Heat transfer and Mass transfer	PPT
1	6	4. Specialised bioreactors- design and their functions	PPT
1	7	5. Airlift bioreactor	PPT
1	8	6. Tubular bioreactors	PPT
1	9	7. Membrane bioreactors	PPT
1	10	8. Tower bioreactors,	PPT
1	11	9. Fluidized bed reactor	PPT
1	12	10.Packed bed reactors and Photo bioreactors	PPT

		Unit 3 **Fermentation media and Fermentation Process:**	
1	13	1. Natural and synthetic media,	PPT
1	14	2. Strategies for media formulation	PPT
1	15	3. sources of carbon, nitrogen, vitamins and minerals.	PPT
1	16	4. Role of buffers, precursors, inhibitors, inducers and antifoam agents	PPT
1	17	5. Types of fermentation processs-submerged fermentation	PPT
1	18	6. surface or solid state fermentation, batch fermentation, continuous fermentation,.	PPT
1	19	7. kinetics of fermentation process	PPT
1	20	8. bioprocess control, monitoring of variables-temperature, agitation, pH and pressure	PPT
		Unit 4 **Downstream Processing**	
1	21	1. Cell disruption,	PPT
1	22	2. Precipitation methods, solid-liquid separation, liquid-liquid extraction, filtration,	PPT
	23	3. Centrifugation, chromatography,	PPT
1	24	4. Drying devices (Lyophilization and spray dry technology),	PPT
1	25	5. Crystallization, biosensors-construction and applications,	PPT
1	26	6. Food processing: food preservation, and spoilage.	PPT
1	27	7. Sterilization and pasteurization,	PPT
1	28	8. Canning and packing of foods.	PPT
		Unit 5 Immobilization and Biotransformation	
1	29	1. Methods of immobilization, adsorption, crosslinking,	PPT
1	30	2. ionic bonding, entrapment, encapsulation;	PPT
1	31	3. Advantages and industrial applications of Immobilization of enzymes and whole cells.	PPT
1	32	4. Biotransformation of antibiotics, steroids and their applications	PPT
1	33	5. Continuation of above	PPT

		Unit 6 Production of Industrially important products	
1	34	1. Alcohol: Ethanol, glycerol,;;;	PPT
1	35	2. Butanol	PPT
1	36	3. Organic acids: citric, acetic, and gluconic acid	PPT
1	37	4. Amino acids: lysine, glutamic acid;	PPT
1	38	5. Antibiotics: penicillin, streptomycin, tetracycline;	PPT
1	39	6. Vitamins: riboflavin,	PPT
1	40	7. Enzymes: amylase, protease,	PPT
1	41	8. biodegradable plastic: polyhydroxyalkanoates (butyarate, propionate.)	PPT
1	42	9. Recombinant protein- Insulin, hepatitis-B vaccine.	PPT
1	43	10.Fermented foods-sausages, olives, bread, idly and acidophilus milk.	PPT
		Unit 7 Intellectual Property Rights (IPRs) and Entrepreneurship	
1	44	1. IPRs– implications for India, WTO, WIPO, GATT, TRIPS.	PPT
1	45	2. Patenting and the procedures involved in the application for patents and granting of a patent,	PPT
1	46	3. compulsory licenses, patent search, Patent Cooperation Treaty (PCT),	PPT
1	47	4. examples of patents in biotechnology, legal implications, traditional knowledge commercial exploitation, protection.	PPT
1	48	5. Entrepreneurship – Potential entrepreneurship activities in biotechnology,	PPT
1	49	6. product development, marketing, research and training units.	PPT
1	50	7. Industrial licensing, venture capital,	PPT
1	51	8. Biotechnology Industries in India and the potential job opportunities.	PPT

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr. Muktha H
Course: M.Sc Biotechnology (Microbiology)
Class Strength: 40

Department: Biotechnology
Course Code: 103
Semester: I

CO1 To understand the System of Classification and Techniques in Microbiology.

CO2 To study the general properties, structure, and reproduction of Prokaryotic microorganisms.

CO3 To study the general properties, structure, and reproduction of Eukaryotic microorganisms.

CO4 To study the structure, characteristics and diseases caused by Acellular entities.

CO5 To study the different parameters in microbial growth and control.

CO6 To study the different microbiological methods.

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Unit - 1 – To study the classification of different microbes based on their morphology and other techniques Three domain classification	Chalk and talk
1	2	Study of phylogenetic relationship bacteria vs Archae	Chalk and talk
1	3	Code of Bacterial nomenclature	Chalk and talk
1	4	Staining Techniques	Chalk and talk
1	5	Serological methods	Chalk and talk
1	6	Phage typing	Chalk and talk
1	7	Biochemical methods	Chalk and talk/PPT
1	8	Flow cytometry	Chalk and talk/PPT
1	9	DNA base composition, Fatty acid profiles	Chalk and talk/PPT
1	10	DNA fingerprinting, rRNA sequence	Chalk and talk/PPT
1	11	Nucleic Acid hybridization, Numerical and Chemotaxonony	Chalk and talk/PPT

1	12	Bergeys Manual, cladograms, Dendograms, Dichotomous keys	Chalk and talk/PPT
1	13	Unit - 2 -Prokaryotic Microorganisms Domain Bacteria (Alpha, beta, Gamma)	Chalk and talk/PPT
1	14	Delta, Epsilon, bacteria	Chalk and talk/PPT
1	15	Cyanobacteria	Chalk and talk/PPT
1	16	Chlorobium, Firmicutes	Chalk and talk/PPT
1	17	Actinobacteria, chlamydiae	Chalk and talk/PPT
1	18	Spirochetes	Chalk and talk/PPT
1	19	Bacteriochaetes	Chalk and talk/PPT
1	20	Fusobacteria	Chalk and talk/PPT
1	21	Domain Archaea, Crenaarcheata	Chalk and talk/PPT
1	22	Euryarcheata	Chalk and talk/PPT
1	23	Unit - 3 Eukaryotic Microorganisms Fungi	Chalk and talk/PPT
1	24	Saccharomyces	Chalk and talk/PPT
1	25	Algae	Chalk and talk/PPT
1	26	Spirulina	Chalk and talk/PPT
1	27	Protozoa	Chalk and talk/PPT
1	28	Plasmodium	Chalk and talk/PPT
1	29	Slime Molds	Chalk and talk/PPT
1	30	Physarum	Chalk and talk/PPT
1	31	Unit 4- Viruses, Viriods and Prions Characteristics, structure, and criteria for classification of viruses	Chalk and talk/PPT

1	32	Viruses that affect humans	Chalk and talk/PPT
1	33	Viruses that affect Animals and plants	Chalk and talk/PPT
1	34	Isolation cultivation and identification of viruses growing in bacteria	Chalk and talk/PPT
1	35	Isolation cultivation and identification of viruses growing in Living animals	Chalk and talk/PPT
1	36	Isolation cultivation and identification of viruses growing in Embryonated eggs	Chalk and talk/PPT
1	37	Isolation cultivation and identification of viruses growing in cell cultures	Chalk and talk/PPT
1	38	Lytic and lysogenic cycle	Chalk and talk/PPT
1	39	Viroids	Chalk and talk/PPT
1	40	Prions	Chalk and talk/PPT
1	41	Unit 5-Microbial growth and control Physical parameters	PPT
1	42	Chemical parameters	PPT
1	43	Culture Media, phases of growth, growth measurements	PPT
1	44	Physical methods	PPT
1	45	Physical methods	PPT
1	46	Chemical methods	PPT
1	47	Unit - 6 Microbiology methods Isolation and cultivation of microorganisms from water soil	PPT
1	48	Isolation and cultivation of microorganisms from Air, Rhizosphere	PPT
1	49	Isolation and cultivation of microorganisms from phyllosphere	PPT
1	50	Isolation and cultivation of microorganisms from Mycorrizha	PPT
1	51	Biogeochemical cycles	PPT and Video
1	52	Gaseous cycles	PPT and Video

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2020-21 (Even semester)

Name of the Faculty: Dr. Muktha H

Department: Biotechnology

Course: M.Sc Biotechnology (Genomics and proteomics)

Course Code: 403

Class Strength: 46

Semester: IV

CO1 To know the concepts of genomics, Transcriptomics metabolomics

CO2 To study the various genome sequencing methods

CO3 To study the genome organization, structure, and analysis

CO4 To understand the concept of functional and comparative genomics

CO5 To know about proteomics

C06 To study about metabolomics

Hours	Date of completion	Topics to be Covered	Pedagogy used
		Unit 1 **Introduction**	
1	Day 1	Concept of genomics, structural genomics	PPT
1	2	Concept of Functional genomics	PPT
1	3	Concept of Transcriptomics, RNAmics	PPT
1	4	Concept of proteomics, metabolomics	PPT
		Unit 2 – Genomics	
1	5	Introduction to genome sequencing methods	PPT
1	6	Fluorescence method, Automated sequencing	PPT
1	7	Shot gun approach, Clone contig method,	PPT
1	8	Genome sequencing project of *E.coli*	PPT
1	9	Genome sequencing project of Yeast	PPT
1	10	Genome sequencing project of Human genome project	PPT
1	11	Genome sequence data bases, expressed sequenced tags (ESTs)	PPT

1	12	Gene variation and Single Nucleotide Polymorphisms (SNPs)	PPT
1	13	Disease association, diagnostic genes and drug targets	PPT
1	14	Genotyping - DNA Chips, diagnostic assays, Genome sequence analysis.	PPT
1	15	Principle, salient features & drawbacks of methods of gene prediction / gene modeling	PPT
1	16	GRAIL, GENEMARK, GLIMMER	PPT
1	17	Promoter prediction methods.	PPT
		Unit 3: Genome Analysis, Genome Organization and Structure:	
1	18	C-Values of genomes, Repetitive and coding sequences	PPT
1	19	Genetic and physical maps, Methods of physical mapping	PPT
1	20	Molecular markers, Hybridization based markers restriction fragment length polymorphism (RFLP"s)	PPT
1	21	Random amplification of polymorphic DNA (RAPD"s) and amplified fragment length polymorphisms (AFLP).	PPT
1	22	Multiple arbitrary amplicon profiling using short oligonucleotide primers,	PPT
1	23	SCAR, micro satellites and other markers	PPT
1	24	length polymorphisms in simple sequences repeats (SSR and ISSR).	PPT
1	25	Approaches to mapping, fluorescence in-situ hybridization (FISH) - DNA amplification markers	PPT
1	26	Telomerase as molecular markers, T-DNA tagging	PPT
1	27	Transposon tagging, General structural features of Viral and Bacterial genomes	PPT
1	28	Organization of E.coli genome	PPT
1	29	Organization of Arabidopsis & Rice genome	PPT
	30	Organization of Human genome	PPT
1	31	Unusual structure of Y chromosome	PPT
1	32	Chloroplast and Mitochondrial genomes	PPT

1	33	Commercializing the genomics, polymorphisms.	PPT
		Unit 5 **Proteomics**	
1	34	Expression analysis and characterization of proteins-separation of proteins-2D PAGE (2DGE)	PPT
1	35	Multiplexed analysis, multidimensional liquid chromatography	PPT
1	36	High throughput screening by Mass spectrometry	PPT
1	37	MALDI-TOF, peptide fingerprinting,	PPT
1	38	Protein Micro array, antibody arrays, antigen arrays, general protein arrays, biochips.	PPT
1	39	Analysis of protein structures-Sequence analysis by Tandem Mass Spectrometry,	PPT
1	40	structure prediction, X-ray, NMR and CD and Bio-informatic approaches.	PPT
1	41	Protein–protein interactions-genetic, comparative genomic, biochemical approaches	PPT
1	42	Large scale analysis of protein intreractions-yeast two hybrid interaction screens	PPT
1	43	Post-translational modification analysis, proteomics databases & analysis.	PPT

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M.S. Ramaiah College of Arts, Science and Commerce

Lesson Plan-Academic Year-2021-2022

Name of the Faculty- Dr. Pramod P Desai **Department: Biotechnology & Genetics**

Course: Biomolecules **Course Code: BTC-103 DSC-7**

Class Strength: (A section = 77, B section=75, Total=152) **Semester: III**

Hours	Sections			Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B		Day 1	Unit – II a) Lipids i) The biological functions of lipids & to understand the classification of lipids in the physiological system. ii) to understand the structure & functions ,metabolic pathway of lipids.	ICT- Power point, Chalk and talk
2	A	B		Day1 & Day 2	a) classification & function of lipids, properties (saponification value, acid value ,iodine number rancidity .	ICT- Power point, Chalk and talk
3	A	B		Day 3	b)hydrogenation of fats and oils,saturated and unsaturated fatty acids	ICT- Power point, Chalk and talk
4	A	B		Day 4	c)general structure & biological functions of phospholipids,sphingolipids d)glucolipids, lipoproteins f)prostaglandis	ICT- Power point, Chalk and talk
5	A	B		Day 5	g)cholesterol	ICT- Power point, Chalk and talk
6	A	B		Day 6	h)ergosterol	ICT- Power point, Chalk and talk
7	A	B		Day 7to 9	i)metabolism chalk & talk ,ppt & Discussion.	ICT- Power point, Chalk and talk
					Unit – II b) Enzymes i) To understand that enzymes kinetics and their activity ,nomenclature & classification . ii)able to understand factors influencing enzyme activity & their transitation state .	
10	A	B		Day 10	* introduction,nomenclature & classification enzyme kinetics	ICT- Power point, Chalk and talk
11	A	B		Day 11&12	*factors,influencing enzyme activity, Metalloenzymes,activation energy & transition state ,enzyme activity ,specific activity	ICT- Power point, Chalk and talk
12	A	B		Day 13	*coenzymes & their functions (fmn,fad,nad) *enzyme inhibition(competitive,non-competative and uncompetitive inhibition with an example)	ICT- Power point, Chalk and talk
13	A	B		Day 14	*zumogens(trypsinogen,chymotrypsinogen and pepsinogen),isozymes (ldh,creatine kinase,alkaline phosphatase & their significance	ICT- Power point, Chalk and talk
					Chalk & talk , ppt & discussion	

Hours	Sections			Date of Completion	Topics to be Covered	Pedagogy Used
15	A	B		Day 15 To Day 18	Unit – Iv a) bioanalytical tools: a)chromatography *to understand bioanyalytical techniques and to demonstrate the skills to perform sepration of molecules.	ICT- Power point, Chalk and talk
16	A	B		Day 15	* principle, procedure & application of paper chromatography	ICT- Power point, Chalk and talk
17	A	B		Day 16&17	*thin layer chromatography, adsorption chromatography	ICT- Power point, Chalk and talk
18	A	B		Day 18	*ion exchange chromatography	ICT- Power point, Chalk and talk
					. Chalk & talk , ppt & discussion	
10	A	B		Day19 To Day22	Unit-iv b)electrophoresis *protocol and application of electrophonsis are understood. *sepration of proteins based on their charge & molecular weight	ICT- Power point, Chalk and talk
11	A	B		Day 19	*principle,procedure and application of electrophoresis (paper electrophoresis gel electrophoresis)	ICT- Power point, Chalk and talk
12	A	B		Day 20	*PAGE,SDS-PAGE & agarose-gel Electrophoresis and isoelectric	ICT- Power point, Chalk and talk
13	A	B		Day 22	focussing	ICT- Power point, Chalk and talk
					Chalk & talk , ppt & Discussion	
				Day 23 To Day28	Unit iii(c) spectroscopy *to umderstand the principle of spectroscopy and it,s techniques for sepration of biomolecules,	
				Day 23 Day25	*uv-vis spectrophotometry,it,s principle and application aspects.	
				Day 26	*mass spectroscopy,mechanism and working principle .	
				Day 28	*atomic absorption spectroscopy	
					Chalk & talk & ppt videos Discussion	

Hours	Sections			Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B		Day 1 Day6	**BIOMOLECULES – PRACTICALS** *apprehend the basics of instruments reagent preparation. *to explore & analyze, quantity various biomolecules,	ICT- Power point, Chalk and talk
2	A	B		Day 1 Day2 Day3	*introduction to basic instruments. *definition of basic terms & calculations. *prepration of buffers –acetate, Phosphate & tris	ICT- Power point, Chalk and talk
3	A	B		Day 4	*estimation of maltose by dns method	ICT- Power point, Chalk and talk
4	A	B		Day 5	*Determination of l-amylase activity By dns method	ICT- Power point, Chalk and talk
5	A	B		Day 6	*estimation of protein by Bradford method.	ICT- Power point, Chalk and talk
6	A	B			Experiments-practically performed Analysed, & to interpret the results.	ICT- Power point, Chalk and talk
7	A	B		Day 7 To Day 10	*to learn the techniques & quantity And analyze the results. .	ICT- Power point, Chalk and talk
10	A	B		Day7	*estimation of amina acid by ninhydria Method.	ICT- Power point, Chalk and talk
11	A	B		Day 8	*extraction of protein from soaked/ Sprouted green gram by salting out Method.	ICT- Power point, Chalk and talk
12	A	B		Day 10	*separation of amino by thin Layer chromatography	ICT- Power point, Chalk and talk
13	A	B		Day 9	*sepration of plant pigment by circular Paper chromatography.	ICT- Power point, Chalk and talk
					Experiments performed	
				Day 11 To Day 12	* to learn the technique and analyze & Interpret the results. Of above experiments.	
				Day 11	*NATIVE PAGE	
				Day 12	*Determination of iodine number Of lipids	
					Practical performance	

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Lesson Plan-Academic Year-2021-2022

Name of the Faculty- Dr. Prashanthi R **Department: Biotechnology**

Course: Immunology and animal biotechnology

Course Code: BTT 503

Class Strength: 148 **Semester: V**

CO1 Understand the details of immunology

CO2 Understanding the importance of antigen and antibody

CO3 Types of antigen and antibody reaction

CO4 Complement and hypersensitivity reaction

CO5 Types of Vaccination and immunization

Hours	Sections			Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B	C	Day 1	History of Immunology	ICT- Power point, Chalk and talk
2	A	B	C	Day 2	scope of Immunology	ICT- Power point, Chalk and talk
3	A	B	C	Day 3	Immunity- Innate and acquired immunity (active and passive)	ICT- Power point, Chalk and talk
4	A	B	C	Day 4	Humoral and cell mediated immunity	ICT- Power point, Chalk and talk
5	A	B	C	Day 5	Continuation,Humoral and cell mediated immunity	ICT- Power point, Chalk and talk
6	A	B	C	Day 6	Cells and organs (primary and secondary lymphoid organs) of immune reponses and their functions	ICT- Power point, Chalk and talk
7	A	B	C	Day 7	Continuation Cells and organs (primary and secondary lymphoid organs) of immune reponses and their functions	ICT- Power point, Chalk and talk
8	A	B	C	Day 8	Antigens Types, epitopes, haptens and factors influencing antigenicity	ICT- Power point, Chalk and talk
9	A	B	C	Day 9	Continuation Antigens Types, epitopes, haptens and factors influencing antigenicity	ICT- Power point, Chalk and talk
10	A	B	C	Day 10	Antibodies- Structure, types, properties and functions of immunoglobulins.	ICT- Power point, Chalk and talk
11	A	B	C	Day 11	Continuation Antibodies- Structure, types, properties and functions of immunoglobulins.	ICT- Power point, Chalk and talk

12	A	B	C	Day 12	Production of antibodies (hybridoma technology)	ICT- Power point, Chalk and talk
13	A	B	C	Day 13	Blood cell components ABO blood grouping, Rh typing	ICT- Power point, Chalk and talk
14	A	B	C	Day 14	Continuation of ABO blood grouping, Rh typing	ICT- Power point, Chalk and talk
15	A	B	C	Day 15	Antigen Antibody reaction-Invitro tests – Precipitation, Immuno electrophoresis, Haemagglutination, Labelled antibody (RIA, ELISA and Immuno-fluorescent techniques).	ICT- Power point, Chalk and talk
16	A	B	C	Day 16	Continuation Antigen Antibody reaction-Invitro tests – Precipitation, Immuno electrophoresis, Haemagglutination, Labelled antibody (RIA, ELISA and Immuno-fluorescent techniques).	ICT- Power point, Chalk and talk
17	A	B	C	Day 17	Complement system-Structure, Components, Properties and Functions	ICT- Power point, Chalk and talk
18	A	B	C	Day 18	Continuation Complement system-Structure, Components, Properties and Functions	ICT- Power point, Chalk and talk
19	A	B	C	Day 19	Continuation Complement System-Structure, Components, Properties and Functions	ICT- Power point, Chalk and talk
20	A	B	C	Day 20	Hypersensitivity and Allergic reactions	ICT- Power point, Chalk and talk
21	A	B	C	Day 21	Continuation Hypersensitivity and Allergic reactions	ICT- Power point, Chalk and talk
22	A	B	C	Day 22	Continuation Hypersensitivity and Allergic reactions	ICT- Power point, Chalk and talk
23	A	B	C	Day 23	Vaccines and Immunization-Passive and Active immunization	ICT- Power point, Chalk and talk
24	A	B	C	Day 24	Continuation Vaccines and Immunization-Passive and Active immunization	ICT- Power point, Chalk and talk
25	A	B	C	Day 25	. Types of Vaccines – Inactivated, Attenuated and Recombinant Vaccines – Peptide and DNA Vaccines	ICT- Power point, Chalk and talk

Prashanthi
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Lesson Plan-Academic Year-2021-2022

Name of the Faculty- Dr. Prashanthi R **Department: Biotechnology**

Course: Industrial Biotechnology **Course Code: BTT 603**

Class Strength: 148 **Semester: VI**

CO1 Learn in details with application, if applicable, to know the concepts of industrial Biotechnology and fermentation technology.

CO2 Specify the classification and characteristics of to remember the basics of Screening, Isolation, maintenance of strains and Types of fermentation and fermenters.

CO3 Apply the basics of Process Development and Production of Microbial products

CO4 Apply Enzyme Biotechnology and analyse Fermented foods.

CO5 Types of Industrial products

Hours	Sections			Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B	C	Day 1	Introduction to industrial Biotechnology	ICT- Power point, Chalk and talk
2	A	B	C	Day 2	basic principles of fermentation technology	ICT- Power point, Chalk and talk
3	A	B	C	Day 3	Screening and Isolation of Microorganisms	ICT- Power point, Chalk and talk
4	A	B	C	Day 4	Strain improvement. (Mutant selection, Recombinant DNA methods), Primary & Secondary metabolites	ICT- Power point, Chalk and talk
5	A	B	C	Day 5	Upstream processing (USP); types of fermenters- typical	ICT- Power point, Chalk and talk
6	A	B	C	Day 6	Airlift fermenter	ICT- Power point, Chalk and talk
7	A	B	C	Day 7	Tower Fermenter	ICT- Power point, Chalk and talk
8	A	B	C	Day 8	Bubble fermenter	ICT- Power point, Chalk and talk
9	A	B	C	Day 9	Solid state fermentation	ICT- Power point, Chalk and talk
10	A	B	C	Day 10	Submerged fermentation	ICT- Power point, Chalk and talk
11	A	B	C	Day 11	continuous fermentation and shake flask fermentation	ICT- Power point, Chalk and talk

12	A	B	C	Day 12	Fermentation media	ICT- Power point, Chalk and talk
13	A	B	C	Day 13	Sterilization techniques – Heat, Radiation and Filtration methods	ICT- Power point, Chalk and talk
14	A	B	C	Day 14	Process of Aeration, Agitation, Temperature regulation and Foam control. Cell bioreactors.	ICT- Power point, Chalk and talk
15	A	B	C	Day 15	Downstream processing (DSP), Disintegration of cells	ICT- Power point, Chalk and talk
16	A	B	C	Day 16	Downstream processing (DSP), Disintegration of cells	ICT- Power point, Chalk and talk
17	A	B	C	Day 17	Separation -solid separation	ICT- Power point, Chalk and talk
18	A	B	C	Day 18	Continuation Separation -solid separation	ICT- Power point, Chalk and talk
19	A	B	C	Day 19	Continuation Separation -solid separation extraction	ICT- Power point, Chalk and talk
20	A	B	C	Day 20	Production of Microbial products Alcohol, raw material, sweet sorghum etc	ICT- Power point, Chalk and talk
21	A	B	C	Day 21	Continuation of Production of Microbial products Alcohol, raw material, sweet sorghum etc	ICT- Power point, Chalk and talk
22	A	B	C	Day 22	Alcoholic beverages	ICT- Power point, Chalk and talk
23	A	B	C	Day 23	Organic acids	ICT- Power point, Chalk and talk
24	A	B	C	Day 24	Antibiotic penicillin	ICT- Power point, Chalk and talk
25	A	B	C	Day 25	Amino acids	ICT- Power point, Chalk and talk
26	A	B	C	Day 26	Vitamin B12	ICT- Power point, Chalk and talk
27	A	B	C	Day 27	Continuation of Vitamin B12	ICT- Power point, Chalk and talk
28	A	B	C	Day 28	Steroid biotransformation	ICT- Power point, Chalk and talk
29	A	B	C	Day 29	Continuation of steroid biotransformation	ICT- Power point, Chalk and talk
30	A	B	C	Day 30	Enzyme Biotechnology. Characteristics of enzymes	ICT- Power point, Chalk and talk
31	A	B	C	Day 31	Immobilized enzymes	ICT- Power point, Chalk and talk
32	A	B	C	Day 32	Industrial enzymes Detergents, Leather, Beverage, food and Pharmaceutical	ICT- Power point, Chalk and talk

33	A	B	C	Day 33	Continuation Industrial enzymes Detergents, Leather, Beverage, food and Pharmaceutical	ICT- Power point, Chalk and talk
34	A	B	C	Day 34 & Day 35	Bioreactors for enzyme production – Stirred tank, membrane reactors and continuous flow reactors	ICT- Power point, Chalk and talk
35	A	B	C	Day 35	Continuation Bioreactors for enzyme production – Stirred tank, membrane reactors and continuous flow reactors	ICT- Power point, Chalk and talk

Prashanthi
Faculty

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M.S. Ramaiah College of Arts, Science and Commerce

Lesson Plan-Academic Year-2021-2022 (October 2021-Feb. 2022)

Name of the Faculty- Dr. Radha Dayanidhi
Course: BSc-Molecular Biology & Biophysics
Class Strength: A sec 80 + B sec 77

Department: Biotechnology
Course Code: BTT 301, CP 340
Semester: III

CO1: To understand the structural details and functions of nucleic acids, in addition to the overview of molecular events comprising of DNA replication.

CO2: To give an insight of gene structure, DNA repair mechanism and the mode of genetic transfer involved in transformation, conjugation and transduction

CO3: To decode the message present in genome to protein expression through transcription and translation in prokaryotes and eukaryotes and to enhance knowledge on post-transcription and post-translation modifications

CO4: To provide the comprehensive understanding on gene expression with the illustration of lac operon and tryptophan operon in prokaryotes and eukaryotes besides the concept of jumping genes and to compare the gene constitution in organelles, chloroplast and mitochondria

CO5: To illustrate the principles and biophysical techniques involved to understand the biological system at molecular level

Hours	Sections		Date of Completion	Topics to be Covered	Pedagogy Used
1	A	B	Day 1	Unit 1: Concept of gene Introduction	ICT- Power point, Chalk and talk
2	A	B	Day 2	Prokaryotic & eukaryotic gene, functional unit	ICT- Power point, Chalk and talk
3	A	B	Day 3	Promoters, introns & exons	ICT- Power point, Chalk and talk
4	A	B	Day 4	Unit 1.4: DNA repair Introduction, causes of damage and mechanisms of repair	ICT- Power point, Chalk and talk
5	A	B	Day 5	Photoreactivation & excision repair	ICT- Power point, Chalk and talk
6	A	B	Day 6	Mismatch repair & SOS repair	ICT- Power point, Chalk and talk
7	A	B	Day 7 & Day 8	Unit 4.2: Spectroscopy Introduction, Beer & Lambert's law	ICT- Power point, Chalk and talk
8	A	B	Day 9 & Day 10	Principles & applications of colorimetry, UV & Visible spectrophotometry, absorption spectroscopy	ICT- Power point, Chalk and talk
9	A	B	Day 11 & Day 12	Fluorescence spectroscopy, X-ray crystallography & NMR imaging	ICT- Power point, Chalk and talk
10	A	B	Day 13	Unit 3.1: Gene regulation in prokaryotes Transcription control mechanism	ICT- Power point, Chalk and talk
11	A	B	Day 14	Negative & positive control	ICT- Power point, Chalk and talk
12	A	B	Day 15 & Day 16	Operon concept: Lac operon	ICT- Power point, Chalk and talk
13	A	B	Day 17 & Day 18	Tryptophan operon	ICT- Power point, Chalk and talk
14	A	B	Day 19	Unit 3.1: Gene regulation in eukaryotes, Introduction	ICT- Power point, Chalk and talk
15	A	B	Day 20	Transcriptional activation	ICT- Power point, Chalk and talk
16	A	B	Day 21	Galactose metabolism in yeast	ICT- Power point, Chalk and talk
17	A	B	Day 22	Unit 3.4: Introduction	ICT- Power point, Chalk and talk
18	A	B	Day 23	Gene organisation & expression in mitochondria	ICT- Power point, Chalk and talk
19	A	B	Day 24	Gene organisation & expression in chloroplast	ICT- Power point, Chalk and talk
20	A	B	Day 25	Unit 4.3: Separation techniques- Introduction, principles & applications of chromatography	ICT- Power point, Chalk and talk
21	A	B	Day 26	Paper & thin layer chromatography	ICT- Power point, Chalk and talk
22	A	B	Day 27	Adsorption & affinity chromatography	ICT- Power point, Chalk and talk
23	A	B	Day 28	Ion exchange chromatography & HPLC	ICT- Power point, Chalk and talk
24	A	B	Day29	Unit 4.4: Centrifugation- Introduction& basic principle of centrifugation	ICT- Power point, Chalk and talk
25	A	B	Day 30	Types & application of centrifugation	ICT- Power point, Chalk and talk

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year -2021 -2022

Name of the Faculty Dr.Ramakrishnaiah T N **Department:Genetics**
Course: B.Sc Genetics **Course Code:**
Class Strength:56 **Semester:V**

CO1 Analysis of Human Chromosomes By Kryotyping
CO2 Understanding and analysing the inheritence pattern of Genetic disorders
CO3 Understanding and analysing pedigree charts
CO4 Under standing the pricipals of Genetic counselling to opt for prenatal diagnosis
CO5 Understanding the genetic basis of Cancer

Sl No	Day/Date	Topics to be Covered	Pedagogy used
1	Day 1	Normal Human Karyotype, Nomenclature.Human Chromosomes:Introduction to Human chromosomes Staining of Human chromosomes, History, different	Power point; Chalk and talk :Discussion
2	Day 2	To know principle, procedure, application Description of flow cytometer, Diagram of flow cytometer, procedure involved in flow cytometer	Power point; Chalk and talk :Discussion
3	Day 3	Genetic Diseases and Inheritance Pattern:Autosomal inheritance- Dominant (Ex. Adult polycystic kidney,)	Power point; Chalk and talk :Discussion
4	Day 4	Autosomal inheritance- Dominant Achondroplasia and Neurofibromatosis	Power point; Chalk and talk :Discussion
5	Day 5	Autosomal inheritance- Recessive:Ex.Albinism, Sickle cell anaemia, Phenylketonuria	Power point; Chalk and talk :Discussion
6	Day 6	X-linked- Dominant :Ex. Duchenne muscular dystrophy-DM	Power point; Chalk and talk :Discussion
7	Day 7	X-linked- Dominant :Pattern of inheritance Ex. Xg blood group	Power point; Chalk and talk :Discussion
8	Day 8	Y-linked inheritance:Pattern of inheritance Holandric gene (Ex. Testes determining factor - TDF)	Power point; Chalk and talk :Discussion
9	Day 9	Mitochondrial diseases:Ex.Congenital malformations: Cleft lip and palate, Rheumatoid arthritis and Diabetes, Ex. Leber's hereditary optic neuropathy	Power point; Chalk and talk :Discussion
10	Day 10	used in pedigree studies, Pedigree analysis and construction, Pedigree analysis for the inheritance pattern of genetic diseases, Genetic Counselling. ▯ Stage 1: History and pedigree construction ▯ Stage 2: Examination ▯ Stage 3: Diagnosis ▯ Stage 4: Counselling ▯ Stage 5: Follow up	Power point; Chalk and talk :Discussion

11	Day 11	Immunology and Immunogenetics:Introduction to immunology- antigens, antibodies, B and T Cells Immunity- Innate and acquired. Immune response - Humoral and Cell mediated	Power point; Chalk and talk :Discussion
12	Day 12	Genetics of immune system:Antibody gene rearrangement and class switching.	Power point; Chalk and talk :Discussion
13	Day 13	agammaglobulinaemia. Major Histocompatibility Complex- Types, HLA disease associations.	Power point; Chalk and talk :Discussion
14	Day 14	immunosupressors Concept of immunization:	Power point; Chalk and talk :Discussion
15	Day 15	types-Benign and Malignant; Sarcoma, Carcinoma, Lymphoma and Leukaemia Properties of malignant cells	Power point; Chalk and talk :Discussion
16	Day 16	types-Benign and Malignant; Sarcoma, Carcinoma, Lymphoma and Leukaemia Properties of malignant cells,	Power point; Chalk and talk :Discussion
17	Day 17	Oncogenes, Difference between V-onc and C – onc oncogenes	Power point; Chalk and talk :Discussion
18	Day 18	Tumor Suppressor genes:p53, pRb.	Power point; Chalk and talk :Discussion
19	Day 19	Chromosomal abnormalities associated with the specific malignancies:Acute Promyelocytic Leukaemia(APL),Chronic Myeloid Leukaemia(CML) and Acute lymphoblastic leukaemia (ALL)	Power point; Chalk and talk :Discussion
20	Day 20	Dermatoglyphics:Introduction and Patterns:Whorl, Loop, Radial, Ulnar	Power point; Chalk and talk :Discussion
21	Day 21	syndrome, Turner's syndrome, Klinefelter's syndrome and Cri du chat syndrome	Power point; Chalk and talk :Discussion
22	Day 22	Dermatoglyphics:Clinical applications, Advantages and Limitations	Power point; Chalk and talk :Discussion
23	Day 23	Prenatal Diagnosis:Introduction	Power point; Chalk and talk :Discussion
24	Day 24	Prenatal Diagnosis:Invasive Prenatal diagnosis - Amniocentesis, Chorionic villus sampling	Power point; Chalk and talk :Discussion
25	Day 25	Prenatal Diagnosis:Non – Invasive Prenatal diagnosis – Ultrasonography	Power point; Chalk and talk :Discussion
26	Day 26	Genetics and Society:Eugenics: Positive and negative	Power point; Chalk and talk :Discussion
27	Day 27	Prenatal Diagnosis:Non – Invasive Prenatal diagnosis – Ultrasonography	Power point; Chalk and talk :Discussion
28	Day 28	Genetics and Society:Euthenics, Euphenics	Power point; Chalk and talk :Discussion
29	Day 29	Human genome project:Introduction and significance Gene therapy with reference to SCID	Power point; Chalk and talk :Discussion
30	Day 30	Stem cells:Properties, types and sources	Power point; Chalk and talk :Discussion
31	Day 31	Stem cells:A brief account on Cord blood banking and Stem cell therapy.	Power point; Chalk and talk :Discussion

TIME TABLE

Term I

Name : ASHARANI R Class : ELECTRONICS Year 2021-2022

PERIOD	I	II	III	IV		V	VI	VII
MON					LUNCH BREAK			
TUE		III sem Bsc				III rd Bsc LIC & C programming		
WED		I st Bsc						
THU			I st Bsc			I st Bsc		
FRI	I st Bsc		I st Bsc			III rd Bsc LIC & C programming		
SAT		III rd Bsc						

LIC & C programming.

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the concept of Character set. Token. Keywords Identifiers using in C programming.	
Content	DAY 1	III rd sem	Unit 3 Importance of C. Character set, Tokens, keywords Identifiers in the C programming.	1
Teaching Pedogogy			Chalk and board method.	
Unit II Teaching Objective			To learn Basic data types and Variables in C - programming.	
Content	DAY 2 DAY 3 DAY 4	III rd sem	Basic data types, variables, declaration of variables. Assigning values to variables. structure of the C-programming	03
Teaching Pedogogy			Chalk & board method.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To acquire the knowledge about operators of C language.	
Content	DAY 5 DAY 6 DAY 7 DAY 8	III rd sem	Arithmetic operators, Relational operators, logical operators Assignment operators, increment and decrement operator, bit wise operators of C program	04
Teaching Pedogogy			Chalk & talk method.	
Unit II Teaching Objective			To learn the concepts of Expression and Evaluation of expression.	
Content	DAY 9 DAY 10.	III rd sem	Expression & Evaluation of Expression type cast operator, Implicit conversion precedence of operators in the Expression	02
Teaching Pedogogy				

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the concept of Arrays in C program.	
Content	DAY 11	III rd sem	Array declaration, accessing Elements, storing elements. two dimensional and Multidimensional arrays. and Example programs.	01
Teaching Pedogogy			Chalk and talk method.	
Unit II Teaching Objective			To know about Input output Statements and library functions of C language.	
Content	DAY 12	III rd sem.	Input, output statements printf(), scanf(), getch() and different library functions namely mathematic & string related functions	01
Teaching Pedogogy			Chalk and talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn Decision making branching and looping statements of C programming.	
Content	DAY13 DAY14 DAY15 DAY16	III rd sem	Unit-I If, If-else, else-if and switch statement, break, for loop, while loop, and do loop.	04
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To learn about functions of C programming.	
Content	DAY17 DAY18 DAY19 DAY20	III rd sem	Defining functions, function arguments and passing return values from functions and Example program, pointers & structures, declaration & Accessing members & initialisation	04
Teaching Pedogogy			Chalk & talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn [illegible] Unit-03	
Content	DAY21 DAY22 DAY23 DAY24	III rd sem	* Definition [illegible] and types of PCB * Different technologies using PCB, Design rationale, tool, PCB layout flow, Art work generation method	04
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To learn PCB fabrication and assembly steps	
Content	DAY25 DAY26 DAY27 DAY28	III rd sem	PCB fabrication techniques single sided multilayer, Etching, Chemical principles and mechanisms, post operations, stripping black oxide coating and solder masking, assembly process	04
Teaching Pedogogy			Chalk & talk method	

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ELE - CT1: ELECTRONIC DEVICES

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about network theorems.	
Content	DAY 1 DAY 2 DAY 3 DAY 4	1st SEM	UNIT-01 Review of KCL & KVL, superposition, thevenin's, Norton's Maximum power transfer and Reciprocity theorems. DC and AC analysis of RC and RL, RLC series/parallel circuit	04
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To acquire the knowledge about PN junction diode	
Content	DAY 5 DAY 6 DAY 7 DAY 8	1st SEM	Ideal and practical diodes. Formation of Depletion layer, Diod equation, VI characteristic Ideal static and dynamic resistance, Zener diode, Reverse saturation current Zener and avalanche break down	04
Teaching Pedogogy			Chalk and talk method.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn Rectifiers.	
Content	DAY 09 DAY 10	1st SEM	Half wave and full wave rectifiers, Expression for output voltage ripple factor and Efficiency, Shunt capacitor filter	02
Teaching Pedogogy			Chalk and talk method	
Unit II Teaching Objective			To understand the concept of transistor biasing and stabilisation circuits	
Content	DAY 11 DAY 12 DAY 13 DAY 14.	1st SEM	unit-3 Fixed bias and voltage devider bias, thermal run-away, stability and stability factor, transistor as a two port network h-parameter equivalent circuit for CE	04
Teaching Pedogogy			Chalk and talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about Amplifiers in electronic circuits.	
Content	DAY15 DAY16 DAY17 DAY18 DAY19	Ist sem.	Small signal analysis of single stage CE amplifier using re model, Input and output impedance, current and voltage gain. types of coupling. - RC coupled amplifier	05
Teaching Pedogogy			Chalk and talk method	
Unit II Teaching Objective			to know about Darlington transistor	
Content	DAY20	Ist sem	Darlington transistor construction working, current gain and loading effect	01
Teaching Pedogogy			Chalk and talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about special semiconductor devices	
Content	DAY21 DAY22 DAY23 DAY24	Ist sem.	LED, LCD and Solar cell - construction, operation and applications, 7 segment display, concept of common anode and common cathode type	04
Teaching Pedogogy			Chalk and talk method.	
Unit II Teaching Objective			To learn voltage regulators types	
Content	DAY25 DAY26 DAY27 DAY28	Ist sem	Unit 2 Block diagram of regulated power supply, line and load regulation, Zener diode as voltage regulators - line and load regulations Advantages	04
Teaching Pedogogy			Chalk and talk.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about variable voltage regulators and fixed regulators	
Content	DAY29 DAY30	IST sem	78XX 79XX fixed voltage regulators, LM317 variable voltage regulator. Clippers Clampers voltage multipliers.	04
Teaching Pedogogy			Chalk and talk method	
Unit II Teaching Objective			To learn about Bipolar junction transistors	
Content	DAY31 DAY32 DAY33 DAY34	IST sem	construction types of transistors, CE, CB and CC configurations. VI Characteristics of a transistor in CE mode.	04
Teaching Pedogogy			Chalk and talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			to learn about current gains and applications of transistor	
Content	DAY35 DAY36 DAY37 DAY38	IST sem	Current gains α, β, γ and interrelations. dc load line Q-point, Transistor as a switch circuit and working. Numericals	04
Teaching Pedogogy			Chalk and talk method.	
Unit II Teaching Objective				
Content				
Teaching Pedogogy				

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
23/12/21	10:25 to 11:20	Ist sem	Unit. 01. Review of KCL. KVL Numericals to find voltage and current by applying KCL & KVL	Revising through the concepts of current and dividing circuit
24/12/21	9:30 to 10:25	Ist sem	Superposition theorem thevenin's theorem and relevent numericals	students able to find RTh & VTh
24/12/21	11:30 to 12:25	Ist sem	Maximum power transfer theorem and Norton's theorem	Students able to find RN & IN Pmax.
28/12/21	10:25 to 11:20	IIIrd sem	Character set, Tokens Keywords and Identifiers	students can differentiate identifiers and keywords
29/12/21	10:25 to 11:20	Ist sem	Numericals on network theorems	Students capable to solve and simplify ckt by using theorems

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
29/12/21	11:30 to 12:25	III rd sem	Datatypes in C programing Integer type floating point type Character type	students capable to define datatypes
30/12/21	9:30 to 10:25	III rd sem	Variables, constants Variable declaration	students capable to define variables.
30/12/21	11:30 to 12:25	Ist sem	AC and DC analysis of RC & RL circuit	students capable to analyse RC & RL ckt
31/12/21	9:30 to 10:25	Ist sem	AC and DC analysis of RLC circuit	students capable to analyze RLC ckt
31/12/21	11:30 to 12:25	Ist sem	Numerical Examples	Students capable to solve numericals

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
1/01/22	10:25 to 11:20	III rd sem	Structure of C program Assigning values to variables and example programs	students capable to assign values to variables
4/1/22	10:25 to 11:20	III rd sem	Operators Arithmetic operators logical operators Relational operators	Students can identify different operators in C-programming.
5/1/22	10:25 to 11:20	Ist sem	RLC resonance circuit → series and → parallel resonance.	students are capable to differentiate series & parallel resonance
5/1/22	2 to 2:55	Ist sem	Numericals on network theorem	students are able to solve the numericals
06/1/22	11:30 to 12:25	Ist sem	Ideal and practical diode	capable to differentiate ideal & practical diode
06/1/22	2 to 2:55	Ist sem	Formation of depletion layer	learn diode Characteristics
06/1/22	3 to 4pm	Ist sem	VI characteristics of diode	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
7/1/22	9:30 to 10:25	Ist sem	Zener diode, Reverse saturation current zener and avalanche breakdown and Zener breakdown	able to understand the zener diode Characteristics
7/1/22	11:30 to 12:25	Ist sem	Half wave rectifier output voltage, ripple factor and Efficiency of HWR.	Able to analyze the working of HWR
7/1/22	2 to 3pm	IIIrd sem.	Bitwise operator conditional operator comma operator assignment operator	students able to use the different operators in C program.
8/1/22	10:30 to 11:30	IIIrd sem	online Increment & decrement operator bitwise operator Expression and Evaluation of expression precedance of operator	students able to use the operators efficently to evaluate Expression in C program

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
11/1/22	10:30 to 11:30am	IIIrd sem	Arrays, declaration Accessing elements, Storing elements, two dimensional array	students Efficiently use the array elements in C program.
11/1/22	2 to 2:55pm	IIIrd sem	Multidimensional Array, Example program.	students able to write program to access array elements.
12/01/22	10:30 to 11:30	Ist sem	Rectifiers :- Full wave rectifiers → centre tapped full wave rectifier → Bridge rectifier.	students can able to analyze the Full wave rectifier circuit
13/1/22	11:30 to 12:25	Ist sem	Block diagram of regulated power supply.	students can understand the each block of RPS
13/1/22	12:25 to 1:30	Ist sem	Zener diode as a voltage regulator fixed and variable voltage regulators	students able to differentiate fixed and variable regulators.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
13/1/22	2 to 3pm	Ist sem	Clippers and clamper circuits	students can analyze clippers & clamper circuits
13/1/22	3 to 3:55pm	Ist sem	Voltage Multiplier. Relavent numericals	students able to understand the function of voltage multiplier.
14/1/22	9:30 to 10:30	Ist sem	Bipolar junction transistor-construction	students able to understand transistor construction
14/1/22	11:30 to 12:25	Ist sem	types of transistors CE, CB and CC configuration	Students can identify differerent configuration of transistors.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
18/01/2022	10:30 to 11:25	IIIrd sem	Input and output statements library functions	students can efficiently use i/o statements
18/01/2022	2 to 2:55	IIIrd sem	Decision making statements If, ifelse, else if statements	students able to use Decision making statements in C program
19/01/2022	10:25 to 11:30	Ist sem	V I Characterstics of a transistor in CE mode. Region of operation leakage current	students able to analyze input and output characterstics of transistor in CE mode.
20/01/2022	11:30 to 12:25 pm	Ist sem	current gains α, β, γ and their inter-relations	capable to derive relation between α, β, γ
20/01/2022	12.30 to 1:25 pm	Ist sem	DC-load line and Q-point.	understand the concept of Q-point & DC load line

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
20/01/2022	2 to 2:55 pm	I st sem	Applications of transistor as a switch circuit and working.	understand the working of transistor as a switch
20/01/2022	3:00 to 3:55 pm	I st sem	Numericals on voltage regulators	able to calculate % of line and load regulation
27/01/2022	11:30 to 12:25 pm	I st sem	Numericals on DC load line and Q-point	able to draw dc load line for give value
27/01/2022	12:30 to 1:30	I st sem	Numericals on LM317 voltage regulator.	able to calculate the regulated voltage of LM317.
27/01/2022	2 to 2:55	I st sem	Biasing circuit, voltage devider biasing fixed biasing	students able to understand the biasing ckt
27/01/2022	3 to 3:55	I st sem	Numericals on biasing	stu

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
22/01/2022	2 to 2:55 pm	III rd sem	Switch statement Break statement	students able to use switch & break statement
22/01/2022	2 to 3:55 pm	III rd sem	Loop statements,- for, do-while, while loop statements	students can differentiate different loop statements
25/01/2022	10:30 to 11:30	III rd sem	functions definition. function argument & passing values.	students can define functions
28/01/2020	9:30 to 10:25	I st sem	Thermal runaway, stability and stability factor, transistor as a two-port Network.	students can define the definitions
28/01/2020	11:30 to 12:25	I st sem	H- parameter equivalent circuit for CE mode	students can define H-parameters
28/01/2022	2 to 2:55	III rd sem	Students can returning value from the function	students learnt about void, int return value & able to use in program.
28/01/2022	3 to 3:55	III rd sem	Example programs.	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
29/01/2022	10:30 to 11:25	III rd sem	Structures and pointers pointers, definition, accessing structure variables. Initialization and Example program	students able to use structures in C program
1/02/2022	10:25 to 11:20	III rd sem	structure and array, array in structure array of structure Example programs	students able to use array in structure
1/02/2022	3 to 3:55	III rd sem	PCB design and fabrication. -> Definition -> need of PCB. -> History of PCB. -> Types of PCB.	students are able to define PCB and know the importance of PCB.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
8/02/2022	10:25 to 11:20 AM	I st sem	Small signal Analysis of single stage CE amplifier using re-model. input/output impedance voltage gain	students able to learn re model of CE amplifier
04/02/2022	9:30 to 10:25 AM	I st sem	Advantages of CC amplifier Types of coupling. two stage RC coupled amplifier.	students can analyze RC coupled amplifier
5/02/2022	10:25 to 11:20 AM	III rd sem	classes of PCB design terminologies in PCB.	students can define the terminologies
8/02/2022	10:25 to 11:20 AM	III rd sem	Different Design (EDA) tools, PCB design process.	Students can learn about EDA - PCB tools.
11/02/2022	9:30 to 10:25	I st sem	Darlington transistor Current gain	students can learn about current gain of DL amplifier

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
11/02/2022	2 to 3 pm	III 2d sem	PCB design process - PCB design flow placement and Routing steps. Art work generation method.	students learn about design flow of PCB.
12/02/2022	10:25 to 11:20 AM	III 2d sem	Layout and Artwork making of single-side Double-side and multilayered boards	students know about Artwork & layout
15/02/2022	10:25 to 11:20 AM	III 2d sem	Design specification & PCB fabrication & Assembly. steps for single double and multilayered PCB	students learned about Assembly of PCB
15/02/2022	2 to 3 pm	III 2d sem	Etching- chemical principles and mechanisms. post operation.	Students learned about Etching.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
17/02/2022	11:30 to 12:25 pm	1st sem	LED, LCD and Solar cell construction	students know about LED LCD working
17/02/2022	12:25 to 1:30 pm	1st sem.	working of solar cell 7 segment display.	Students learnt about significance of solar cell
24/02/2022	11:30 to 12:25 pm	1st sem	Common anode and common cathode 7-segment display	students learnt about 7 segment display.
25/02/2022	11:30 to 12:25 pm	1st sem	Numerical problems.	students can solve numericals
25/02/2022	2 to 2:55 pm	III 2d sem.	Black oxide coating and Solder masking PCB component assembly process.	Students learnt about assembly process & coating of PCB

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
2/03/22	10:25 to 11:20 AM	I st sem	Revision class on Numericals of Regulation	students able to find ripple factor of Regulators.
4/3/22	9:30 to 10:25 AM	I st sem	Revision class on Numericals of Bridge rectifier.	students able to find effici-ency of rectifier.
08/03/22	10:25 to 11:20 AM	III rd sem	Art work	able to indent and Art work.
8/03/22	10:25 to 11:20 AM	I st sem	Revision class on Numericals on RC circuit	students are able to calculate RC constant
11/3/22	9:30 to 10:25 AM	I st sem	Revision class on Regulated power supply	students are understand the working of Regulated power supply.
16/03/22	10:25 to 11:20 AM	I st sem	Numericals on BJT.	students able to Calculate the gain of the transistor

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome

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TIME TABLE

Term I

Name : ASHARANI . R Class Electronics Year 2021-2022

PERIOD	I	II	III	IV	LUNCH BREAK	V	VI	VII
MON						OE	ELE 401T	
TUE			EL-401T	ELE CT2		Digital Electronics & verilog lab.		
WED		ELE CT2		OE				
THU				←		ELE-CP2 Lab.		
FRI				OE				
SAT	EL 401T	← Digital Electronics & verilog lab →						

EL-401T Digital Electronics and Verilog.

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the concept of Boolean algebra: constants, variables operators and Basic logic gates.	
Content	DAY 1	IVth sem	Unit 01:- constants, variables operators, Logic symbols Truth table. Expression for Logic gates	1
Teaching Pedogogy			Chalk and talk	
Unit II Teaching Objective			To learn about positive and negative logic, Boolean laws.	
Content	DAY 2 DAY 3	4Th sem	positive logic, Negative logic, Boolean laws:- Associative law, commutative law, Distributive law to simplify Boolean Expression	02
Teaching Pedogogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand the D-Morgan's law and concept of SOP & POS	
Content	Day 4 Day 5	4Th sem	D-Morgan's law, simplification of logic Expression SOP & POS, Example problem for Reduction of logic Expressions	2
Teaching Pedogogy			Chalk & Talk.	
Unit II Teaching Objective			To know Derived gates and Universal property of NAND & NOR gates.	
Content	Day 6	4Th sem	Derived logic gates The Universal property of NAND and NOR gate	1
Teaching Pedogogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn K-map to simplify logic for	
Content	Day 7 Day 8	4TH Sem	reduction and minimization. K-map to simplify logic and POS. Expressions simplification	2
Teaching Pedagogy			Chalk & talk	
Unit I Teaching Objective			To learn the concept of logic families	
Content	Day 9 Day 10	4TH Sem	Basic characteristics. Logic families and their characteristics. NAND gate discription by using TTL logic with totem pole and open collector. Circuit description of cross coupled TTL inverter diagram	2
Teaching Pedagogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about combinational circuits like half adder, full adder, half subtractor, full subtractor.	
Content	Day 11 Day 12	4TH Sem	UNIT-II Working of Half adder, Full adder, half subtractor, full subtractor, truth table, circuit diagram	02
Teaching Pedagogy			Chalk & talk	
Unit II Teaching Objective			To learn the working of comparator, Encoder, Decoder.	
Content	Day 13 Day 14 Day 15	4TH Sem	Encoder, Decimal to BCD priority encoder. Decoder 2:4 decoder using encoders. 3:8 decoder using NAND gates. BCD to decimal decoder. BCD to 7-segment decoder.	03
Teaching Pedagogy			Chalk & talk.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand the concept of Multiplexer and Demultiplexer	
Content	Day16 Day17 Day18	4Th sem	Multiplexer 4:1, Demultiplexer 8:1, Demultiplexer 1:4 Demultiplexer using gates. Realization of Full adder and Full Subtractor using Mux & decoder.	03
Teaching Pedogogy			Chalk & talk	
Unit II Teaching Objective			To learn the concept of Binary to Gray converter. BCD to Excess 3 code conversion.	
Content	Day19 Day20	4Th sem.	code converter namely BCD to Excess 3 code, Binary to Excess Gray code and Gray code to Binary conversion.	02
Teaching Pedogogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the concepts of flipflops.	
Content	Day21 Day22 Day23	IVTh sem.	Unit-3 To analyse the working of Rs. latch, Rs flipflop Edge triggered and level triggered. D-flipflop. edge triggered JK & master slave JK flipflop. Clear & preset. TFF	03
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To understand the concepts of Registers	
Content	Day24 Day25 Day26.	IVTh sem	Types of shift registers 4bit SISO, PIPO, PISO & SIPO Ring counter, Johnson counter Applications.	03
Teaching Pedogogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the concepts of Asynchronous counters & Synchronous counters	
Content	Day27 Day28 Day29	IV Th Sem	3bit ripple counter. 3bit up-down counter and modulo counter. Synchronous counter MODS, MODS & Decade counters	03
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To understand the concepts of PLDs - SPLD'S	
Content	Day30 Day31 Day32	IV Th Sem	Types of PLDs, SPLDs - ROM, PLA, PAL and GAL, CPLD and FPGA.	03
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about logic families. Unit-03	
Content	DAY 1 Day 2 Day 3 Day 4	II nd Sem.	Pulse Characteristics, Logic families Classification Characteristics, TTL NAND gate description by using totempole and opencollector. CMOS families	04
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To learn combinatorial logic circuits	
Content	Day5 Day6 Day7 Day8	II nd Sem.	Simplification of SOP, POS Expressions. K-map for 3 & 4 Variables. Adders, subtractors Decimal to BCD priority Encoder, 2:4 decoder, 3:8 decoder using NAND gates. Decoders	4
Teaching Pedogogy			Chalk & talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about combinational circuits.	
Content	Day 9 Day 10 Day 11 Day 12	IInd Sem	BCD to 7 Segment decoder, 4:1 Multiplexer 8:1 multiplexer, Demultiplexer 1:4 and 1:8. Adder Subtractor using Mux and decoder.	04
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			Know Digital to Analog converter.	
Content	Day 13 Day 14	IInd Sem.	DAC with binaryweighted resistors and R-2R Resistor ladder	02
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand the concepts of Sequential logic circuits	
Content	Day 15 Day 16 Day 17 Day 18	IInd Sem.	Flipflops. Rs Latch. Edge triggered and level triggered concept. Rs, D and JK FF. Master preset and clear operation. Race around condition	04
Teaching Pedogogy			Chalk and talk	
Unit II Teaching Objective			To know about flipflops and its applications	
Content	Day 19 Day 20 Day 21 Day 22	IInd Sem.	JK flipflops. Master slave JK flip flops. Applications of flip flops in Semiconductor memories RAM, ROM and types	04
Teaching Pedogogy			Chalk and talk.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand the working of Registers	
Content	Day23 Day24 Day25	IInd Sem	Types of shift registers and its Applications. SISO, PSPO, SIPO and PISO.	03
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To Know the working of counters	
Content	Day26 Day27 Day28	IInd Sem	Asynchronous counters 4bit ripple counter. modulo-n counters. 4 bit up down counter. Synchronous counter 4 bit counter. Design of mod 6 Decade counter.	02
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about combinational logic circuits	
Content	Day1 Day2 Day3 Day4	IInd Sem	Definition, applications Half adder, Symbol, logic circuit using xor and basic gates Truth table Full adder, Symbol circuit Truth table	04
Teaching Pedogogy			Chalk and talk	
Unit II Teaching Objective			To know about basic combinational circuit - Subtractor.	
Content	Day5 Day6 Day7 Day8	IInd Sem	Half Subtractor Symbol logic circuit using xor and basic gates. Truth table Full Subtractor Symbol, logic circuit Truth table	04
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about pin diagram IC 7483. IC 7486.	
Content	Day9 Day10 Day11 Day12	IInd Sem	pin diagram of IC 7483 and IC 7486 Internal structure	04
Teaching Pedogogy			Chalk & talk	
Unit II Teaching Objective			To know about parallel adder.	
Content	Day13 Day14 Day15 Day16.	IInd Sem.	4 Bit parallel binary adder, BCD adder design and working	04
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about Adders by using universal gates	
Content	Day17 Day18 Day19 Day20	IInd Sem	IC 7483 NAND and NOR implementation of Adders	04
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To know about flipflops and latches.	
Content	Day21 Day22 Day23 Day24 Day25	IInd Sem	Importance of clock in digital circuit and intro duction to flipflop. flip flop comparision with latches. Quantitative study of edge triggering RS latch. unclocked.	05
Teaching Pedogogy			Chalk & talks	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about Sequential circuits	
Content	Day26 Day27 Day28 Day29 Day30	IInd Sem	RS flipflop using NAND gate, Symbol, truth table timing diagram D-flip flop Symbole truth table and timing diagram	05
Teaching Pedogogy			Chalk and talk.	
Unit II Teaching Objective			To learn the concepts of Sequential Circuits JK FF.	
Content	Day31 Day32 Day33 Day34 Day35	IInd Sem.	Realization of JKFlip flop using NAND gates, working and timing diagram. Race around condition. preset and clear inputs pin diagram of IC 74112	05.
Teaching Pedogogy			Chalk and talk	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To know about T flip flop	
Content	Day36 Day37 Day38 Day39 Day40.	IInd Sem.	TFF logic symbol JK flipflop as a T. flip flop truth table and Timing diagram. master slave flipflops, Advantages	05
Teaching Pedogogy			Chalk and talk	
Unit II Teaching Objective			To learn about Registers	
Content	Day41 Day42 Day43 Day44 Day45		IC 7473. & IC 7476. pin diagram, Registers, Definition, types of Registers Serial in serial out Serial in parallel out parallel in Serial out parallel in parallel out timing diagram & Specifications.	05
Teaching Pedogogy			Chalk and talk	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
16/5/22	9:30 10:25 AM	4TH sem	Boolean algebra, constants variables. operators and basic gats.	→ students know about Boolean Expressions.
18/5/22	11:30 to 12:25 pm	4TH sem	Basic gates - symbol, truth table and positive & -ve logic	→ students learnt Basic gates & types of logic
19/5/22	2 to 2:50pm	4TH sem	Boolean laws, Duality & theorem	→ Students learnt Boolean laws to simplify expressions
23/5/22	9:30 TO 10:25 AM	4TH sem	De-Morgan's theorem and simplification of SOP & POS	→ students learnt the simplification of SOP & POS
23/5/22	2:50 to 3:40 pm	4TH sem	NAND & NOR Gates, Universal property of NAND & NOR gate.	→ students understand universal property of NAND & NOR gates
24/5/22	9:30 to 10:25AM	4TH sem	Minterms, Maxterms	→ Differentiation of min & max terms.
25/5/22	11:30 to 12:25 pm	4TH sem	Simplification of SOP for 3 & 4 variables	→ students learnt K-Map simplification.
30/5/22	9:30 to 10:25 pm	4TH sem	Simplification of POS for 3 & 4 variables	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
31/5/22	9:30 to 10:25 AM	4TH sem	Logic families, Pulse Characteristics, characteristics of logic families	→ students learnt Logic families & Characteristics
6/6/22	9:30 to 10:25 AM	4TH sem	circuit description for NAND gate using totem pole & open collector. TTL IC terminology.	→ students understand the TTL logic
6/6/2022	2:50 to 3:40 pm	4TH sem	CMOS Inverter & comparision of TTL & CMOS families.	→ Students can differentiate CMOS & TTL logic.
6/6/2022	3:40 to 4:30	4TH sem.	Unit-2 Combinational logic circuits Half adder and full adder	→ students can analyse the working of adder.
7/6/2022	9:30 to 10:25 AM	4TH sem.	Half subtractor and full subtractor	→ Students understand the subtractor circuit.
9/6/2022	2 to 2:50	4TH sem	Two bit comparator & encoder	→ Students learnt working of comparator
11/6/2022	9:30 to 10:25AM	4TH sem	Encoders,	
13/6/2022	9:30 to 10:25 AM	4TH Sem	Decimal to BCD priority encoder. 2:4 decoder using NAND gates	learnt the concepts of encoder & decoder

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
13/6/2022	2:50 to 3:40pm	4th sem	3:8 Decoder using NAND gates.	Working of 3:8 decoder
13/6/2022	3:40 to 4:30 pm	4th sem	BCD to decimal decoder.	students learnt Decoder.
14/6/2022	9:30 to 10:25AM	4th sem	BCD to 7-Segment decoder.	Analysis of 7 Segment decoder
18/6/2022	9:30 to 10:25AM	4th sem	Multiplex 4:1 Multiplexer 8:1	Students learnt Mux.
19/6/2022	09:30 to 10:25 AM	4th sem	1:4 demux using gates.	students understand Demux.
22/6/2022	2:50 pm	4th sem	Realization of full adder and subtractor using mux & decoder.	Constructed adder & subtractor using mux & decoder
23/6/2022	2:50 to 3:40 pm	4th sem	Binary to Graycode converter.	Learnt Binary to Gray converter

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
29/06/2022	10:25 to 11:20 AM	2nd sem	Pulse Characteristics Logic families.	understands Logic families
30/06/2022	2:50 to 3:40 pm	4th sem	BCD to Excess-3-code conversion using k-map.	Learnt Excess-3 code
2/7/2022	9:30 to 10:25pm	4th sem	Flipflops. clocked RS flipflop. Edge &	students learnt Flipflops &
4/7/2022	9:30 to 10:25AM	4th sem	level triggered Flipflops.	triggering
5/7/2022	9:30 to 10:25 AM	4th sem.	D flipflop - construction & working	students learnt working of DFF.
5/7/2022	10:30 to 2:25 pm	2nd sem	classification of digital ICs, Characteristics of Logic families.	students learnt Characteristics of IC
6/7/2022	10:25 to 11:20 pm	2nd sem	Circuit description of TTL NAND gate with totempole	Students learnt Characteristics of TTL logic.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
11/7/2022	9.30 to 10.25 AM	4th sem	JK flipflop.	Learnt working of JK flipflop
12/7/2022	11:30 to 12:25 pm	2nd sem	TTL NAND gate description by using open collector.	students learnt TTL logic
12/7/2022	12:25 to 1:20 pm	2nd sem	CMOS NAND and	students learnt CMOS logic
13/7/2022	10:25 to 1:20 pm	2nd sem	comparison of TTL & CMOS families.	
14/7/2022	2 to 2:50 PM	4th sem	Edge triggered JKFF Masterslave JK flipflop preset & clear I/P	Learnt the working of JKFF
14/7/2022	10:25 to 11:20 AM	2nd sem	Combinational circuits SOP & POS, SSOP & SPOS	students can simplify SOP & POS
15/7/2022	10:25 to 11:20 AM	2nd sem	K Map for 3 variables Numericals	Students can solve K-map
19/7/2022	11:30 to 12:25 pm	2nd sem	K-map for 4 variables Numericals	Students can solve Kmap for 4 variables

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
19/7/2022	9:30 to 10:25 AM	4th sem	Registers and counters Types of shift, SISO SIPO.	student learnt shift register
20/7/2022	10:25 to 11:20 AM	2nd sem	Half adder & Full adder.	students learnt adder circuit
21/7/2022	10:25 to 11:20 AM	2nd sem	Half Subtractor Full Subtractor	students learnt working of Subtractor.
26/07/2022	9:30 to 10:25 pm	4th sem	PIPO & PISO. parallel input parallel output parallel input serial output.	students can understand & write the timing diagram & TT of registers
26/07/2022	11:30 to 12:25 pm	2nd sem	4 bit parallel binary adder. 2 bit comparator	4 bit adder working
26/07/2022	12:25 to 1:20 pm	2nd sem	4 bit comparator.	student learnt the working of comparator.

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LESSON EXECUTION

CE Electronics

Date	Time	Class	Contents	Learning outcome
4/1/2022	2:10 to 3:55	2nd Sem CE	Definition and applications of combinational circuits	students learnt the concept of combinational circuits
5/01/2022	12:25 to 1:20 pm	2nd Sem CE	Half adder → symbol, logic circuit, truth table	students know about adder
6/01/2022	12:25 to 1:20 pm	2nd Sem CE	full adder symbol logic circuit using And and XOR gate	students learnt about full adder
13/1/2022	12:25 to 1:20 pm	2nd Sem CE	Half Subtractor → symbol & logic circuit using gates, TT	students learnt Half Subtractor
15/1/2022	12:25 to 1:20 pm	2nd Sem CE	full Subtractor → symbol & logic circuit & truth table	learnt the concept of Subtractor
19/01/2022	12:25 to 1:20 pm	2nd Sem CE	Half adder using NAND gate	students constructed Half adder using NAND gate.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
20/01/2022	12:25 to 1:20 pm	2nd Sem CE	full adder using NAND Gate	students can construct full adder using NAND gate
21/01/2022	12:25 to 1:20 pm	2nd Sem CE	Half subtractor, symbol logic circuits using XOR and basic gates truth table → demonstration	students learnt about working of Half subtractor
27/01/2022	12:25 to 1:20 pm	2nd Sem CE	full subtractor symbol logic circuit using XOR and basic gates, truth table → demonstration	Students learnt the working of full subtractor
1/2/2022	2 to 3 pm	2nd Sem CE	Adder using NOR Gate → Half adder	students learnt construction of adder using NOR gate.
2/02/2022	12:25 to 1:20 pm	2nd Sem CE	Encoder Introduction	concept of Encoder
3/2/2022	12:25 to 1:20 pm	2nd Sem CE	full adder using NOR Gate.	students can construct full adder using NOR gate

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
28/07 2022	2 to 2:55 pm	4th sem	counters Ripple counter (up counter)	students learnt counters
30/7/ 2022	9:30 to 10:25 am	4th sem	counter - Ripple counter down counter	students can differentiate up counter / Down counter.
1/8/ 2022	2:50 to 3:40 pm	4th sem	Asynchronous MOD-counter MOD3 - counters	student understand MOD counters
2/8/ 2022	9:30 to 10:25 am	4th sem	MOD5 - Asynchronous counter	students learnt construction of A-MOD-5 counter
4/8/ 2022	2 to 2:55 pm	4th sem	Synchronous counter.	learnt the concept of Synchronous counter.
5/8/ 2022	9:30 to 0:25 am	4th sem	MOD 5 counter design Using K-Map.	students learnt design of MOD-5 counter

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
8/08/ 2022	09:30 to 10:15 am	4th sem	Types of PLDS SPLD & CPLD, FPGA	students learnt types of PLD'S.
8/08/ 2022	2 to 2:50 pm	OE 2nd sem	Demonstration of 4 bit parallel adder.	students. know the working of 4 bit parallel adder
10/08/ 2022	10:25 to 11:20 am	2nd sem core	Decimal to BCD priority encoder.	acquire the knowledge of encoder.
10/08/ 2022	12:25 to 1:20 pm	2nd sem OE	Demonstration of Adder Using NAND Gate.	students' know the working of Half adder.
11/8/ 2022	2 to 2:50 pm	4th sem	Programmable logic Array.	understand the concepts of PLA
12/08/ 2022	12:25 to 1:20 pm.	OE 2nd sem	programmable Array Logic.	understand the concept of PAL

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
16/08/2022	11:30 to 12:25 pm	4th sem	Generic Array logic.	students understand the concept of GAL.
17/08/2022	10:25 to 11:20 AM	2nd sem core	Decoder. 2:4 decoder 3:8 decoder & 7 Segment display.	students know working of decoder.
17/08/2022	12:25 to 1:20 pm	2nd sem OE	Demostrated working of full adder using NAND gate	students understand the working of adder.
18/08/2022	2 to 2:50 pm.	4th sem	Difference between. CPLD & FPGA.	Differentiation between CPLD & FPGA.
19/08/2022	9:25 to 1:20 pm	2nd sem OE	Sequential circuits - Importance of Clock in Sequential circuits	students know the Characteristics of Clock.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
20/08/22	9:30 to 10:25 AM	4th sem	Revision of Demux & Mux working	Analyse the working of Mux & Demux
22/08/22	2:55 to 3:40 pm	4th sem	Revision class.	students know solve SOP Numerials.
22/08/22	2 to 3pm	2nd sem OE	Demonstration of IC7483 & IC 7486.	students study the IC 7486
24/08/22	12:25 to 1:20 pm	2nd sem OE	Demonstration of IC 7483 to perform 4 bit adder.	students study IC 7483
25/08/2022	10:25 to 11:25 AM	2nd sem core	1:4 & 1:8 Demultiplexer.	students can construct & understand demux & its working
26/08/2022	12:25 to 1:20 pm.	2nd sem core	Full adder & Subtractor using mux & decoder.	students can design the HA, FA using mux & decoder.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
30/08/22	2:10 to 2:55 pm	2nd sem OE	Demonstration of 4 bit adder subtractor using 7483. NAND NOR implementations of adder.	students know the binary adder/subtractor.
2/09/22	2 to 2:55 pm	2nd sem OE	Importance of clock in digital circuit	students know the clock significance
5/09/22	2 to 2:55 pm	2nd sem OE	Difference between latch and flipflops.	students know the latch & flipflops
7/09/22	2 to 2:55 pm	2nd sem OE	Level & edge triggering	students learn the significance of triggering.
8/09/22	9:30 to 11:30	2nd sem core	DAC with binary weighted ~~Rs~~ latch. ~~truth table~~. ~~Symbole~~ resistor	students learns the concept of DAC. & ADC.
	2hs	2nd sem core	R-2R ladder ckt for DAC & ADC	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
9/09/22	2 to 2:55 pm	2nd sem OE	Rs Latch/unclocked. Symbole truth table.	students acquire the knowledge of Rs Latch.
12/09/22	2 to 2:55 pm	2nd sem OE	Rs flipflop using NAND Gate.	students learnt the working of RSFF
14/09/22	2 to 2:55 pm	2nd sem OE	Timing diagram of SRFF.	students know the timing diagram
15/09/22	8:30 to 9:30 am	2nd sem core	Analog to digital converter. Successive approximation method performance.	students can leart ADC.
15/09/22	2pm to	2nd sem core	Sequential circuits. SRFF level & edge triggering Rs, D flipflops, Application of flipflops in semiconductor.	students can understand the working of flip flops & Applications.
15/09/22	4pm	2nd sem core	Ram, Rom and types. and types.	
16/09/22	2 to 2:55 pm	2nd sem OE	SD flipflop truth table circuit symbole	students learnt working of DFF
17/09/22	9:30 to 10:30 2hs pm	2nd sem OE	JK flipflop using NAND Gate.	students understand the concept of JKFF

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
19/09/2022	2:10 to 2:55 pm	2nd sem OE	Race around condition in JKFF, preset and clear input	students understands the concept of Race around condition
20/09/2022	8:30 to 9:30am	2nd sem core	Registers & counters shift registers & applications. Ring & Johnson counter.	Students learnt the shift register
21/09/2022	9:30 pm to 10:20pm	2nd sem core	4bit ripple counter, modulon counters 4bit updown counters	Students know working of counters.
21/09/2022	2:10 to 2:55 pm	2nd sem OE	pin diagram of IC74112.	Understand the structure of IC74112
28/09/2022	12:25 to 1:20 pm	2nd sem core	Design of MOD 3, MOD5 & decade counter using using K-map	Students learn Design of counters
24/09/2022	8:30 to 10:30 pm	2nd sem OE + core	JK FF T flip flop: Logic symbol JKFF as a T flip flop truth table.	working of TFF

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
26/09/2022	8:30 to 11:30am 3hr	2nd sem OE	Timing diagram of TFF. Demonstration of TFF	Demonstration of TFF
27/09/2022	8:30 to 11:30 am	2nd sem OE	Master slave JKFF truth table and timing Diagram. Advantages of MSJKF.	Students learnt the concept of JKFF
28/09/2022	8:30 to 11:30am (2hr)	2nd sem OE	pin diagram of IC 7473 IC 7476.	Students understand the structure of ICs.
29/09/2022	(2hr) 8:30 to 10:30 am	2nd sem OE.	shift register, SISO. SIPO, PISO, PIPO. truth table, timing diagram and speed comparision.	students learnt the concept of shift register.

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LIC & C Programming EL-301T

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To check the students knowledge on the basis of Opamp & Various parameters	
Content	DAY 1	III rd Sem	Unit - I (Revision) Opamp - Block Diagram, equivalent circuit, Various parameters of opamp - i/p bias current, i/p offset voltage o/p offset voltage, CMRR, slew rate, SVRR.	1
Teaching Pedogogy			Chalk & board method, ICT tools.	
Unit II Teaching Objective			To learn mono, dual & quad opamp ICs To understand limitations of opamp in open loop configuration. To learn its Negative feedback characteristics.	
Content	DAY 2 DAY 3 DAY 4	III rd Sem	characteristics of ideal & practical opamps. Mention 3 different opamp ICs & (741 OP07, LM308) comparison with respect to parameters limitations of opamp in open loop mode Opamp with -ve feedback: inverting amplifier, derivation for	3
Teaching Pedogogy			chalk & board method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Learning the concept of virtual ground. To device voltage gain of non inverting Amplifier. Basic concepts of summer & subtractor.	
Content	DAY-5 DAY-6	III rd sem	Concept of virtual & short ground. Non-inverting Amplifier derivation for Av. Voltage follower - circuit & features. Summing Amplifier / adder & subtractor - derivation for the o/p voltage.	2
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To learn how opamp can be used as an averaging amplifier, integrator & differentiator	
Content	DAY-7 DAY-8	III rd sem	Averaging amplifier, scale changer, numerical problems. Integrator, differentiator - derivation for the o/p voltage. Output waveforms for sines square wave inputs, small signal half wave rectifier - circuit & working.	2
Teaching Pedogogy			Chalk & talk method	

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn opamp Open loop application - comparator circuit & characteristics to learn circuit & waveform of schmitt trigger & IC 555	
Content	DAY-9 DAY-10 DAY-11 DAY-12	III rd sem	UNIT II : APPLICATION OF OPERATIONAL AMPLIFIER & IC555 Open loop applications: comparator circuit & characteristics, schmitt trigger - circuit & waveforms, schmitt trigger IC's, first order active filter, LPF, HPF - derivation of cut off frequency	4
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To learn numerical problems on LPF, HPF & learn BP, BS, all pass filters circuit & working of instrumentation amplifier & oscillators.	
Content	DAY-13 DAY-14 DAY-15 DAY-16	III rd sem	Numerical problems, Band pass, band reject & all pass filters, Instrumentation amplifier - circuit & working. phase shift oscillator using opamp & Wein bridge oscillator - circuit, working, expression for frequency of oscillation, problems	4
Teaching Pedogogy			Chalk & talk method	

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about ADC & DAC	
Content	DAY-17 DAY-18 DAY-19 DAY-20		DAC: types of DAC, circuit & working 4 bit binary weighted resistor type DAC. ADC: characteristics, types of ADC, chip companion, circuit & working of Successive approximation ADC	4
Teaching Pedogogy			Chalk & talk method, ICT tools.	
Unit II Teaching Objective			To learn about ICs & opamps.	
Content	DAY-21 DAY-22 DAY-23 DAY-24		Unit I Integrated circuits, Adv & disadv of ICs, Scale of integration - classification of ICs by structure & function IC terminology, fabrication of monolithic ICs - steps involved in fabrication of NPN transistor	4
Teaching Pedogogy			Chalk & talk method ICT tool	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about PCM design.	
Content		Day 25 Day 26 Day 27	Unit 3: PCB design & Fabrication. Introduction to PCB Definition & need of PCB, back ground & history of PCB, types of PCB, class of PCB design, terminology in PCB, Different EDA tools & comparison	3
Teaching Pedogogy			~~To learn about~~ Chalk & talk method, PPTs	
Unit II Teaching Objective			To learn PCB design process & fabrication	
Content		DAY 28 DAY 29 DAY 30 DAY 31 DAY 32	PCB design process: PCB design flow, placement & routing step involved in layout design Art work generation methods - manual & CAD, General design factors for analog & digital circuits Layout & Artwork making for single side double side & multi layer board. Design for manufacturability - Specification standards, Introduction to PCB fabrication & Assembly double sided & multilayer, etching	5
Teaching Pedogogy			Chalk & talk method PPT	

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EL501T – COMMUNICATION

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn the various types of analog modulation techniques & its block diagram.	
Content	DAY-1 DAY-2	V th Sem	UNIT 2 :- Analog Modulation techniques Block diagram of electronic communication system modulation – need & types of modulation – AM, FM & PM Amplitude modulation – representation Modulation index	2.
Teaching Pedogogy			Chalk & talk method, ICT tools PPTs	
Unit II Teaching Objective			To find & make the students understand Expression of instantaneous Voltage of AM, power relation & frequency spectrum to learn AM collector modulation	
Content	DAY-3 DAY-4 DAY-5	V th Sem	Expression for instantaneous Voltage, power relation frequency spectrum, DSBFC, DSBSC & SSBC (Mention only) AM collector modulator, limitations of AM.	3
Teaching Pedogogy			Chalk & talk method	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about FM, FM Generator.	
Content	DAY-6 DAY-7 DAY-8	V th Sem	FM – definition, modulation index, FM frequency spectrum BW requirements, frequency deviation & carrier swing FM generators – Varactor divide modulator.	3
Teaching Pedogogy			Chalk & talk method, PPTs	
Unit II Teaching Objective			To understand the block diagram of AM transmitter & Receiver.	
Content	DAY-9 DAY-10	V th Sem	Block diagram of AM transmitter & FM transmitter with AFC, Qualitative study of pre-emphasis, Comparison of AM & FM Numerical Examples.	2.
Teaching Pedogogy			Chalk & talk method PPTs	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand the working principle of AM & FM detector for demodulation	
Content	DAY-11 DAY-12	V th Sem	UNIT-3:- RADIO RECEIVERS Demodulation - AM detection - principle of detection, linear diode & transistor detector - circuits, principle of working & waveforms	2.
Teaching Pedogogy			Chalk talk method. PPT	
Unit II Teaching Objective			To understand the working principle of AM & FM superheterodyne receivers.	
Content	DAY-13 DAY-14 DAY-15 DAY-16 DAY-17	V th Sem	FM detector principle, slope detector circuit & working AM superheterodyne receiver principle. block diagram, function of each stage with waveform, qualitative study of AGC FM - superheterodyne receiver principle, BD, function of each stage.	5
Teaching Pedogogy			Chalk & talk method, PPTs	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about demphasis & characteristics of radio receivers	
Content	DAY-18 DAY-19	V th Sem	Qualitative study of de-emphasis, characteristics of radio receivers - qualitative study of sensitivity, selectivity, S/N, fidelity, image frequency & rejection	2
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To learn about radio wave patterns & antenna parameters	
Content	DAY-20 DAY-21 DAY-22 DAY-23	V th Sem	UNIT 4:- ANTENNA Radiation mechanism, wire radiators in space - resonant antennas - radiation patterns & current distribution for different lengths, non-resonant antennas antenna parameters - gain, directive gain, power gain, BW, polarization, efficiency, radiation resistance	4
Teaching Pedogogy			Chalk & talk method. PPTs	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To understand mechanisms of various types of antenna	
Content	DAY-24 DAY-25 DAY-26 DAY-27	V th sem	Derivation for the power radiated by antenna & expression for radiation resistance ungrounded & grounded antennas, effect of antenna height folded dipole, numerical egs. Qualitative study of helical loop antenna.	4
Teaching Pedogogy			Chalk & talk method	
Unit II Teaching Objective			To study the blocks & principle of television, colour TV, CCTV, HDTV & TV games.	
Content	DAY-28 DAY-29 DAY-30	V th sem	UNIT 5 – TELEVISION Introduction, Scanning interlaced scanning, TV camera tube, composite video signal blanking & synch pulses, V & B transmission, TV system & standard comparison between American & European systems.	3
Teaching Pedogogy			Chalk & talk method, ICT tool	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn block diagram of monochrome TV transmitter & receiver & basic principles of colour TV	
Content	DAY-31 DAY-32 DAY-33	V th sem	Block diagram of monochrome TV transmitter & Receiver Basic principle of colour TV primary & secondary colours colour combination, chroma & luminance processing, colour TV receiver (PAL)	3
Teaching Pedogogy			Chalk & talk method, PPTs	
Unit II Teaching Objective			To learn & understand the concepts of CCTV, HDTV & TV games	
Content	DAY-34 DAY-35 DAY-36 DAY-37 DAY-38 DAY-39 DAY-40 DAY-41 DAY-42	V th sem	Concept of CCTV, HDTV pic-in-pic, pic phones, TV games, numerical examples. UNIT I - Noise & Transmission lines - Noise introduction Signal to noise ratio & noise fig - Numerical egs Transmission lines - types & equivalent circuit of T line, primary & secondary constants, reflection coeff, VSWR & CSWR - numerical examples, losses & distortions in T lines, Propagation of waves - ground wave, sky wave, space wave propagation, ionosphere & its effect	
Teaching Pedogogy			Chalk & talk method, PPT,	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
7/10/21	9.30-10.25	BSc III sem	Integrated circuits - introduction	Students learnt about the concept of IC
11/10/21	10.25-11.30	BSc V sem	Noise - introduction.	Students introduced to the concepts of noise
12/10/21	~~9.30~~ 10.25 11.20	BSc III sem	Adv & disadv of ICs Scale of integration	Students learnt about the adv, disadv & Scale of integration
12/10/21	9.30-10.25	BSc V sem	internal noise	Students learnt about diff types of internal noises
12/10/21	11.30-12.25	BSc V sem	internal noise	Students learnt about sub categories of internal noise
21/10/21	~~9.30~~ 10.25 11.20	BSc V sem	External noises, Signal to noise ratio.	The Students learnt about diff types of external noise S/N ratio
21/10/21	9.30-10.25	BSc I sem	Classification of ICs by structure & by function	Students understood the classification ICs

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
21/10/21	2 to 2.50	BSc Vsem	Noise figure Numerical examples.	Students ~~should~~ learnt about NF & practised on some numerical egs
22/10/21	2 to 4.30	BSc III sem	LIC & C Programming lab - introduction.	Students were given familiarization to CRO & Signal generator
25/10/21	10.25 to 11.20	BSc Vsem	Unit 2 BD of electronic communication System	Students learnt Introduction to electronic communication System & BD.
26/10/21	11.30 - 12.25 pm	BSc Vsem	Modulation - need.	Students learnt about the need of modulation
26/10/21	2 - 4.30pm	BSc III sem	LIC & C Programming Lab - 1st exp. (inverting & non inverting amplifier - freq response)	Students practised on 1st exp
27/10/21	2 - 2.50pm	BSc Vsem	Types of modulation.	Students understood the different types of modulation.
27/10/21	~~10.30~~ - 10.20 - 1.20pm	BSc Vsem	Communication lab - 1st exp AM & demodulation	Students constructed AM circuits

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
28/10/21	9.30 - 10.25 am	BSc III sem	IC terminology	Students got an idea about IC terminology
28/10/21	2 - 2.50pm	BSc III sem	fabrication of monolithic IC - Steps involved in fabrication of npn transistor	Students understood the steps involved in fabrication of monolithic ICs.
28/10/21	10.25 - 1.20pm	BSc Vsem	Communication lab - 1st exp AM demodulation.	Students constructed & tested demodulation
29/10/21	10.25 - 11.20	BSc III rd sem	Opamp - Block Diagram	Students learnt the Block Diagram of opamp
29/10/21	2.00 - 4.30pm	BSc III rd sem	LIC & C Programming lab - 1st exp (inverting & non inverting amplifier freq resp)	Students constructed the circuit & observed waveform.
09/11/21	9.30 - 10.25	BSc Vsem	AM - Representation	Students learnt about the representation of AM
09/11/21	10.25 - 11.20	BSc III rd sem	Equivalent circuit of opamp, Characteristics of ideal & practical opamp	Students understood the equivalent circuit & characteristics

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
10/11/21	2.30 pm	BSc III sem	LIC & C programming Lab - Non inverting amplifier	Student demonstrated the freq response of non inverting amplifier
10/11/21	9.30 - 12.25pm	BSc V sem	Communication Lab - AM demodulation	Student demonstrated AM demodulation technique
10/11/21	12.25 - 1.20	BSc I sem	Bridge Course - Introduction to Electronics	Students were given an introduction to electronics
10/11/21	2.00 - 2.50	BSc V sem	AM - modulation index, expression for instantaneous voltage	Students were learnt about the concept of modulation index & derivation of instantaneous voltage
11/11/21	9.30 - 10.25am	BSc III sem	Limitations of opamp in open loop mode	Students were learnt about limitations of opamp in open loop
11/11/21	10.25 - 1.20 am	BSc V sem	Communication Lab - pre emphasis (B_3, B_4)	Students demonstrated the pre emphasis exp.
11/11 12/11	12 - 1pm 10 - 1pm	BSc I sem	Bridge course - Electronic components	Students were learnt about electronic components

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
13/11/21	9.30 - 10.25am	BSc V sem	power relations, frequency spectrum	Students learnt power relations & understood freq spectrum.
15/11/21	9.25 - 1.20pm	BSc I sem	Introduction to Electronic component	
13/11/21	10.25 - 1.20pm	BSc V sem (B_1, B_2)	Communication Lab - premphasis	Students demonstrated the premphasis exp.
15/11/21	10.25 - 1.20pm	BSc V sem (B_3, B_4)	Communication Lab - Deemphasis	
16/11/21	9.30 - 10.25	BSc V sem	DSBFC, DSBSC & SSSBC	Students learnt about the SSB techniques
16/11/21	10.25 - 11.20	BSc III sem	Inverting Amplifier - derivation of Av, concept of virtual ground.	Students learnt to derive gain of inverting amplifier
16/11/21	2.00 - 4.30pm	BSc III sem (B_1, B_2)	LIC & C programming lab - Adder circuits	Demonstrated Adder circuit
17/11/21	9.30 - 12.25 pm	BSc V sem (B_1, B_2)	Communication lab - deemphasis.	Students demonstrated deemphasis exp
17/11/21	12.25 - 1.20pm	BSc I sem	Active & Passive components introduction.	Students understood about active & passive components
18/11/21	9.30 - 10.25 am	BSc I sem	Definition of voltage, current, Resistance	Students learnt about voltage, current & resistance.
18/11/21	11.30 - 12.25 pm	BSc III sem	Non-inverting amplifier - derivations of Av	Student learnt about derivation of gain

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
18/11/21	10.25-1.20pm	BSc Vsem (B3,B4)	Communication lab - VCO	Students demonstrated VCO exp
18/11/21	2-2.50pm	BSc IIsem	Numerical problems on inverting amplifier	Students were given practice to solve numerical problems.
19/11/21	9.30-10.25am	BSc Isem	Resistors, Resistor colour coding	Students were given practice on numerical problems.
20/11/21	9.30-10.25am	BSc (Vsem)	Numerical problems on AM.	
20/11/21	10.25-1.20pm	BSc (Vsem) B1,B2	Communication lab - VCO	Students demonstrated VCO experiment.
23/11/21	9.30-10.25am	BSc Vsem	Numerical problems on AM, AM collector modulator, Limitations of AM	Students learnt about AM collector modulator, limitations of AM.
23/11/21	10.25-11.20 am	BSc IIIsem	Numerical problems on non inverting amplifier, Voltage follower - circuit & features.	Students learnt about voltage follower
23/11/21	12.25-1.20pm	BSc Isem	Passive Components. Resistor, Properties.	Students learnt about resistor.
23/11/21	2-4.30 pm	BSc IIIsem (B1,B2)	LIC & C programming lab (subtractor)	Students demonstrated sub tractor circuit

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
24/11/21	9.30-12.25	BSc Vsem (B1,B2)	Communication lab (Audio cross over network)	Students demonstrated the audio cross over network exp.
24/11/21	2.00-2.50 pm	BSc Vsem	FM - definition, modulation index, FM frequency spectrum diagram	Students learnt about FM modulation index, freq spectrum
25/11/21	9.30-10.25 am	BSc IIIsem	Summing amplifier derivation of output voltage	Students understood how to derive o/p voltage
25/11/21	10.25-1.20pm	BSc Vsem (B3,B4)	Communication lab (Audio cross over network)	Student demonstrated audio cross over network exp.
25/11/21	2.00-2.50pm	BSc IIIsem	Numerical problems on summing amplifier, averaging amplifier	Students got practice on numerical problems.
26/11/21	11.20-12.25	BSc Isem	Resistor - types	Students learnt about different types of Resistor
26/11/21	2.00-4.30pm	BSc IIIsem (B3,B4)	LIC & C Programming (Subtractor)	Students demonstrated sub tractor

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
27/11/21	9.30-10.25 am	BSc Vsem	FM- Bandwidth Requirement, frequency deviation & Carson Swing, numerical examples	Students learnt about FM-BW requirement, freq deviation
27/11/21	10.25-12.20 pm	BSc Vsem (B1, B2)	Communication lab - frequency mixer	Students demonstrated frequency mixer experiment
29/11/21	12.25-1.20 pm	BSc Isem	Capacitor, inductor - introduction.	Students learnt about the basics of capacitor & inductor
2/12/21	9.30-10.25 am	BSc IIIsem	Subtractor - derivation of o/p voltage	Students learnt to derive the o/p voltage of subtractor
2/12/21	11.30-12.25	BSc Isem	Variable Resistor	Students learnt about different type of variable resistor.
2/12/21	12.25-1.20pm	BSc Isem	familiarise & learn of resistor colour coding (lab)	Students identified Resistance value
3/12/21	9.30-10.25	BSc Isem	Capacitors - Introduction.	Students got familiar with capacitors.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
3/12/21	12.25-1.20	BSc Isem	Types of capacitors - fixed capacitors	Students learnt about types of fixed capacitor.
3/12/21	2.00-4.30pm	BSc IIIsem	LIC & C programming Lab (B3, B4) & LPF	Students demonstrated LPF
4/12/21	9.30-10.25	BSc IIIsem	Averaging amplifier Scale changer.	Students learnt about averaging amplifier & Scale changer
4/12/21	10.25-12.20 pm	BSc Vsem (B1, B2)	Communication lab. frequency multiplier	Students demonstrated frequency multiplier exp.
6/12/21	2.00-4.30pm	BSc Vsem (B3, B4)	Communication lab - frequency multiplier	Students demonstrated freq multiplier exp
7/12/21	9.30-10.25am	BSc Vsem	FM generator - Varactor diode Modulator.	Students learnt about the working principle of varactor diode modulator
7/12/21	10.25-11.30 am	BSc IIIsem	Numerical problems on Summing, averaging amplifier & Scale changer	Students were given practice on numerical problems.

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Date	Time	Class	Contents	Learning outcome
[illegible]	[illegible]	[illegible]	[illegible] programming lab	Students demonstrated LPF expressions
[illegible]	[illegible]	[illegible]	Variable capacitor	Students learnt about types of variable capacitor
[illegible]	[illegible]	[illegible]	Induction introduction	Students were given introduction to inductors
[illegible]	[illegible]	[illegible]	Communication Lab Class C tuned amplifier	Students demonstrated Class C tuned amplifier exp
[illegible]	[illegible]	[illegible]	Integrator derivation of o/p voltage	Students learnt about integrator & derivation of its o/p voltage
13/12/21	2.00 - 2.50pm	BSc III sem	Integrator - output waveforms for sine, square wave inputs	Students learnt about expected o/p waveform for integrator
13/12/21	2.50 - 4.30pm	BSc V sem (B, B)	Communication Lab — Class C tuned amplifier	Students demonstrated Class C tuned amplifier experiment

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
[illegible]	9.30 - 10.20 am	BSc V sem	Block diagram of AM transmitter	Students learnt about AM transmitter
14/12/21	10.20 - 11.20am	BSc III sem	Differentiator derivation of output voltage	Students learnt about derivation of o/p voltage
14/12/21	2.00 - 4.30pm	BSc III sem (B, B)	LCR & C programming lab HPF integrator & differentiator	Students demonstrated HPF expressions
15/12/21	2.00 - 2.50pm	BSc V sem	Block diagram of FM transmitter with AFC	Students learnt about FM transmitter
16/12/21	10.20 - 11.20am	BSc I sem	Types of inductors	Students learnt about the types of inductors
16/12/21	9.30 - 10.20 am	BSc III sem	Differentiator - output waveforms for sine, square wave inputs	Students learnt about the output waveforms of differentiator
16/12/21	2.00 - 2.50pm	BSc III sem	Small signal half wave rectifier circuit & working	Students learnt about half wave rectifier circuit

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Date	Time	Class	Contents	Learning outcome
[illegible]	[illegible]	[illegible]	[illegible] Source	Students learnt about ideal & practical voltage source
[illegible]	[illegible]	[illegible]	[illegible] Source	Students learnt about ideal & practical current source
[illegible]	[illegible]	[illegible]	[illegible] of KVL numerical problems	Students learnt about KVL & given practice on numerical problems
[illegible]	[illegible]	[illegible]	[illegible] KCL numerical problems	Students learnt about KCL & given practice on numerical problems
[illegible]	[illegible]	[illegible]	[illegible] & C [illegible] integrator & differentiator	Students learnt about HPF, integrator & differentiator
[illegible]	[illegible]	[illegible]	Zener reg application of zener - comparison circuit & its characterization	Students learnt about Comparator circuit
[illegible]	[illegible]	[illegible]	Wien Bridge Oscillator	Students demonstrate wien bridge oscillator

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
[illegible]	11.30-12.30pm	BSc II sem	Schmitt trigger circuit	Students learnt about Schmitt trigger circuit
[illegible]	9.30-10.25	BSc V sem	Qualitative study of preemphasis comparison of AM & FM	Students learnt about preemphasis & comparison of AM & FM
[illegible]	3.00-4.30pm	BSc V sem (B, B)	Communication lab - IF amplifier	Students demonstrated the experiment of IF amplifier
[illegible]	2.00-3.30pm	BSc V sem	Introduction to Radio receivers - Demodulation. AM detection - principle of detection.	Students learnt about demodulation & AM detection
[illegible]	9.30-10.25 am	BSc V sem	Linear diode detector - transistor detector principle of working & waveforms	Students learnt about linear diode & transistor detector
[illegible]	[illegible]	BSc II sem	Schmitt trigger circuit - waveforms	Students learnt about waveforms & Schmitt trigger circuit
[illegible]	3.00-5.00pm	BSc III sem	Schmitt trigger IC	Students learnt about [illegible]

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
[illegible]	1.00 - 3pm	BSc II sem (B3F)	2 C's C programming unit - Wien Bridge Oscillator	Students demonstrated wien bridge oscillator experiment
[illegible]	9.30 - 2.25 pm	BSc Vsem	FM detector Principle, Slope detector circuit's working	Students learnt about FM detector principle, circuit's working
[illegible]	2.00 - 2.50pm	BSc Vsem	AM superheterodyne receiver principle, BD, function of each block with waveform, AGC	Students learnt about superheterodyne principle
[illegible]	9.30 - 10.25am	BSc IIsem	First order active filter introduction, LPF - Derivation of cut off freq	Students were introduced to the concept of active filter, LPF
[illegible]	2.00 - 2.50pm	BSc IIsem	HPF - Derivation of cut off frequency.	Students were learnt about HPF's derivation of cut off freq
[illegible]	9.30 - 10.25 am	BSc Vsem	FM - Superheterodyne Receiver, principle, BD, function of each stage	Students learnt about FM superheterodyne Receiver
11/01/22	9.30 - 10.25 am	BSc Vsem	Characteristics of radio receivers - qualitative study of sensitivity, selectivity, S/N ratio, fidelity, image freq rejection	Students learnt about the characteristics of radio receiver

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
11/01/22	11.30 - 12.25 pm	BSc Vsem	Transmission lines - types & equivalent circuit of T lines, primary & secondary constants	Students learnt about transmission lines, primary & secondary constants
12/01/22	9.30 - 10.25 am	BSc Vsem	Numerical problems on primary & secondary constants	Students were given practice on numerical problems
12/01/22	10.25 - 11.30 am	BSc Vsem	Reflection coefficient, VSWR & CSWR - numerical examples.	Students were learnt about standing wave, reflection
13/01/22	9.30 - 10.25 am	BSc IIIsem	Numerical problems on LPF, HPF	Students were given practice numerical problem on LPF, HPF
13/01/22	2.00 - 2.50pm	BSc IIIsem	BPF, BRF & all pass filters, Instrumentation amplifier circuit's working	Students learnt about BPF, BRF & all pass filters
[illegible]	9.30 - 10.25 am	BSc Vsem	Losses & distortions in T-lines	Students learnt about losses & distortions in T lines
19/01/22	9.30 - 10.25 am	BSc Vsem	Antenna - introduction, Radiation mechanism	Students were given an introduction to antenna & radiation mechanism

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
19/01/22	2.00-2.50	BSc V sem	Wire Radiator in space resonant antennas - radiation pattern & current distribution for different lengths.	Students learnt about radiation pattern & current distribution for wire radiator
20/01/22	9.30-10.25 am	BSc III sem	Oscillators introduction Barkhausen criteria, RC phase shift Oscillator - Expression for cut off freq	Students learnt about RC phase shift oscillator.
20/01/22	2.00-2.50pm	BSc III sem	Wien Bridge Oscillator, expression for cut off freq, Numerical problems on RC phase shift oscillator & Wien bridge Oscillator	Students learnt about wien bridge Oscillator & were given practice on problems.
22/01/22	9.30-10.25am	BSc V sem	Non resonant Antenna, antenna parameters - gain, directive gain, power gain, Band width, beamwidth.	Students learnt about non resonant antenna & antenna parameters.
25/01/22	9.30-10.25 am	BSc V sem	Antenna parameters - polarization, efficiency, radiation resistance, total effective resistance.	Students learnt about antenna parameters & radiation resistance

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
27/01/22	9.30-10.25 am	BSc III sem	DAC: types of DAC, circuit & working of 4 bit binary weighted resistor type DAC	Students learnt about DAC.
27/01/22	12.25-1.20pm	BSc V sem	derivation of power radiated by antenna & expression for radiation resistance, Numerical problems	Students learnt the derivation of power radiated by antenna.
27/01/22	2.00-2.50pm	BSc II sem	ADC - Characteristics, types of ADC & their comparison	Students learnt about ADC, types & comparison
29/01/22	9.30-10.25 am	BSc V sem	Ungrounded & grounded antennas, effect of antenna height, Folded dipole, Qualitative study of helical & loop antenna	Students learnt about ungrounded, grounded folded helical & loop antennas
1/2/22	9.30-10.25 am	BSc V sem	Television - introduction, Scanning, interlaced scanning	Students learnt about the concept of Scanning

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
1/2/22	10.25-11.20am	Vth sem	TV camera tube, Composite video signal - blankings Synchronizing pulses. VSB transmission	Students learnt about TV camera tube, composite video, VSB tran
1/2/22	2.00-2.50pm	Vth sem	TV systems & Standard comparison between American & European systems. Block diagram of monochrome TV transmitter	Students learnt about TV systems & stds, BD of monochrome TV transmitter
2/2/22	2.00-2.50pm	Vth sem	Block Diagram of monochrome TV receiver, Basic Principle of Colour TV	Students learnt about monochrome TV receiver & basic principle of colour TV
3/2/22	9.30-10.25 am	IIIrd sem	~~Revision~~ Successive Approximation ADC - circuit & working	Students learnt about the working of successive approx ADC.
4/2/22	9.30-10.25am	Vth sem	Colour Combination, chromas luminance Processing, Colour TV Receiver (PAL) Concept of CCTV, HDTV, pic-in pic, pic phones, TV games numerical examples	Students learnt about Colour combination luminance Processing colour TV receiver (PAL), CCTV, HDTV

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
10/2/22	9.30-10.25	IIIrd sem	Revision on Unit 1	Students were given revision on important topics on unit 1
10/2/22	2.00-2.50pm	IIIrd sem	Revision on unit 2	Students were given revision on important topics on unit 2

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TIME TABLE

Term I

Name : RITHU R Class : ..... Year 2021-2022

PERIOD	I	II	III	IV		V	VI	VII
MON	EL601T (VI sem) ELE-7 BSc				LUNCH BREAK	← PAPER 7 Lab VI sem (BSc) B3, B4 →		
TUE		ELE-7 (BSc VI sem)	ELE-2 (BSc II sem)					
WED	← PAPER 7 (BSc VI sem)		Lab → (B1, B2)			ELE-7 (BSc VI sem)		
THU	← PROJECT LAB BSc VI sem (B3, B4)		ELE-2 (BSc II sem) →	← ELE2 lab (BSc II sem)		← ELE2 Lab → (BSc II sem)		
FRI		ELE-2 (BSc II sem)						
SAT		← PROJECT LAB → BSc VI sem (B1, B2)						

EC-601T COMMUNICATION II

SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			1. To learn about digital & pulse modulation techniques 2. To learn the characteristics of data transmission	
Content	DAY 1 DAY 2 DAY 3 DAY 4 DAY 5	VI Sem	UNIT I: DIGITAL COMMUNICATION Introduction to pulse & digital communications, digital radio, Sampling theorem types - PAM, PWM, PPM, PCM - quantization advantages & its applications, Digital modulation (ASK, FSK, PSK) Adv & disadv of digital transmission	05
Teaching Pedogogy			Using PPT and chalk & board teaching	
Unit II Teaching Objective			1. To learn about digital characteristics of transmission circuits 2 To learn about MODEM, RS232 interface	
Content	DAY 6 DAY 7 DAY 8		Characteristics of data transmission circuits - Shannon limit for information capacity, bandwidth requirements data transmission speed, noise, crosstalk, echo suppressors, distortion & equalizers MODEM - modes, classification, interfacing (RS232)	03
Teaching Pedogogy			Using PPT & chalk & board teaching	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about the basics of RADAR, pulse radar system & Radar range equation	
Content	DAY 9 DAY 10 DAY 11 DAY 12	VI Sem	UNIT 2: RADAR SYSTEMS RADAR - principles, frequencies & powers used in RADAR, max unambiguous range, detailed Block diagram of pulsed RADAR system, RADAR range equation - derivation	04
Teaching Pedogogy			~~Online~~ PPT & chalk & board teaching, content based learning.	
Unit II Teaching Objective			To learn about doppler effect, MTI Radar, CW, FMCW Radar	
Content	DAY 13 DAY 14 DAY 15 DAY 16 DAY 17	VI Sem	Effect of ground on RADAR antenna characteristics, Doppler effect, MTI Radar - Block Diagram, CW Radar - BD, advantages applications & limitations, FMCW Radar - Block diagram, numerical egs wherever applicable	05
Teaching Pedogogy			PPT & chalk board - teaching & content based learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about the basics of satellite communication	
Content	DAY 18 DAY 19	VI	UNIT I SATELLITE COMMUNICATION Introduction need satellite orbits advantages & disadvantages of geostationary satellites satellite visibility satellite system - space segment	02
Teaching Pedogogy			PPT, chalk & board based learning	
Unit II Teaching Objective			To learn about satellite subsystems, satellite access satellite antenna.	
Content	DAY 20 DAY 21 DAY 22 DAY 23 DAY 24 DAY 25	VI	Block diagrams of satellite subsystems uplink downlink, cross link, transponder (C Band) effect of solar eclipse, path loss, ground station, Simplified BD of earth station. Satellite access FDMA TDMA CDMA concepts, comparison of TDMA & FDMA, satellite antenna GPS satellite like SPS & PPS	06
Teaching Pedogogy			PPT, chalk & board teaching	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about the fiber optic communication	
Content	DAY 26 DAY 27	VI	UNIT 4 [illegible] Introduction need to use. Block diagram of system fiber optic cables light propagation through fiber step index graded index fiber	02
Teaching Pedogogy			PPT, chalk & board based learning	
Unit II Teaching Objective			To make the students understand about the types of optical fiber cables losses & principles.	
Content	DAY 28 DAY 29 DAY 30 DAY 31 DAY 32		Snell's law, numerical aperture (derivation) Types of optical fiber cables, light sources - requirements, LEDs & semiconductor laser diodes photodetectors - PN, PIN & avalanche photodiodes losses in optical fibres - Rayleigh Scattering, absorption bending modes	05
Teaching Pedogogy			Content based learning, Chalk & board based learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about bending, joint junction losses & advantages & disadvantages of OFC over metallic cables.	
Content	DAY33 DAY34	VI	Bending, Joint junction loss, Advantages & disadvantages of OFC over metallic cables.	02
Teaching Pedogogy			Chalk & board based learning	
Unit II Teaching Objective			To learn about Cellular Mobile Communication	
Content	DAY35 DAY36 DAY37	VI	UNIT 5 – CELLULAR COMMUNICATION & WIRELESS LANs Concept of Cellular Mobile Communication – cell & cell Splitting, frequency bands used in cellular Communication. ARFCN freq reuse, roaming & hand off	3
Teaching Pedogogy			Chalk & talk method, PPT based learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To make the students understand the concepts of data encryption, GSM, CDMA, 2G, 3G & 4G concepts	
Content	DAY38 DAY39 DAY40	VI	Authentication of SIM card, subscriber, IMEI no., concept of data encryption (CBD) architecture of cellular mobile communication network, CDMA technology, CDMA overview	3
Teaching Pedogogy			Chalk & talk method, Content based learning	
Unit II Teaching Objective			To learn about GSM, 2G, 3G & 4G concepts	
Content	DAY41 DAY42	VI	Simplified Block Diagram of cellular Phone handset, comparative study of GSM & CDMA, 2G, 3G & 4G concepts	02
Teaching Pedogogy			Chalk & talk method Content based learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about varactor diode, schottky & tunnel diode	
Content	DAY1 DAY2	II sem	UNIT I: Varactor diode, Schottky diode, Tunnel diode construction, characteristics, working, symbol & application for each	
Teaching Pedogogy			Chalk & board based teaching.	
Unit II Teaching Objective			To learn about JFET — types	
Content	DAY3 DAY4 DAY5	II sem	JFET-Types-p channel & n channel, working & IV characteristics-n channel JFET, parameters & their relationships, comparison of BJT & JFET	
Teaching Pedogogy			Chalk & board based teaching	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about MOSFET, types, MOS, CMOS inverter, characteristics IGBT working	
Content	DAY6 DAY7 DAY8 DAY9	RA II sem	MOSFET E-MOSFET, D-MOSFET - n channel and p-channel, construction, working symbol biasing, drain & transfer characteristics, VMOS, UMOS Power MOSFETs, handling, MOS logic, symbols & switching action of MOS	
Teaching Pedogogy			To learn about NMOS, CMOS inverter & characteristics IGBT Chalk & board teaching	
Unit II Teaching Objective			To learn about NMOS, CMOS & IGBT & UJT	
Content	DAY10 DAY11 DAY12	II sem	NMOS inverter, CMOS logic, CMOS-inverter, circuit & working, CMOS characteristics IGBT construction & working UJT: Construction, working, Equivalent circuit & I-V characteristics, intrinsic standoff ratio Relaxation Oscillator	
Teaching Pedogogy			PPT based learning chalk & board-teaching	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			[illegible]	
Teaching Objective			[illegible]	
Content	[illegible]	[illegible]	BCR construction working [illegible] circuit & I V [illegible] applications [illegible] FWR [illegible] AC and HAC construction [illegible] [illegible] [illegible]	
Teaching Pedagogy			[illegible] board board method of teaching	
Unit II			To learn about the basics of opamp	
Teaching Objective				
Content	DAY [illegible] DAY [illegible] DAY [illegible]	[illegible]	[illegible] Internal amplifier Block diagram of Op amp, Characteristics of ideal & practical opamp open loop configuration [illegible] response CMRR slew rate & concept of virtual ground	
Teaching Pedagogy			chalk board board method of learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			To learn about the applications of opamp	
Teaching Objective				
Content	DAY 18 DAY 19 DAY 20 DAY 21	II Sem	Applications of opamps Concept of feedback positive & negative feedback advantages of negative feedback inverting & non inverting amplifier summing & difference amplifier differentiator integrator comparator & zero crossing detector	
Teaching Pedagogy			PPT board learning chalk & board board method of learning	
Unit II			To learn about filters, Oscillators & IC 555 timer	
Teaching Objective				
Content	DAY 22 DAY 23 DAY 24 DAY 25 DAY 26	II Sem	Filters first and second order active low pass high pass band pass Butterworth & filter Oscillators Barkhausen criterion for sustained oscillations Wien bridge oscillator crystal oscillators Wien bridge oscillator	
Teaching Pedagogy			PPT chalk & board board learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			To learn about IC 555 timer.	
Content	DAY27 DAY28	II sem	IC 555 timer: Introduction, Block Diagram, Astable & Monostable multivibrator circuits (Numerical egs wherever applicable)	
Teaching Pedogogy			PPT & Content based learning	
Unit II Teaching Objective				
Content				
Teaching Pedogogy				

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective				
Content				
Teaching Pedogogy				
Unit II Teaching Objective				
Content				
Teaching Pedogogy				

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
16/5/22	9.30-10.25am	VI sem	UNIT I - Introduction to pulse & digital communication	Students were introduced to the concepts of pulse & digital communication
18/5/22	2.00-2.50pm	VI sem	digital radio, sampling theorem types of pulse modulation	Students understood the concept of digital radio, sampling theorem
21/5/22	10.25am-11.20am	VI sem	PAM, PWM techniques	Students learnt about PAM, PWM techniques
27/5/22	10.25am-11.20am	VI sem	PPM, PCM-quantization, advantages & application	Students learnt about PPM & PCM techniques
28/5/22	10.25am 11.20am	VI sem	types of digital modulation techniques, ASK	Students learnt about ASK technique
30/5/22	9.30-10.25am	VI sem	FSK & PSK techniques, advantages & disadvantages of digital transmission	Student learnt about ASK, PSK & adv & disadv of digital transmission
30/5/22	2.00-3.30pm	VI sem	Communication II lab (PAM modulation - 1st experiment)	Students demonstrated pulse amplitude modulation
1/6/22	2.00-2.50pm	VI sem	Characteristics of data transmission circuits - Shannon limit for information capacity	Students learnt about Shannon limit for information capacity

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
04/6/22	12.25-1.20pm	VI sem	bandwidth requirements, data transmission speed Numerical problems	Students learnt about bandwidth, bit, baud rate & numerical problems were given
06/6/22	10.30 to 10.25 am	VI sem	noise, crosstalk	Students learnt about data transmission characteristics - noise & crosstalk
06/6/22	2.00-4.30pm	VI sem	PAM demodulation experiment & 555 timer IC explanation	Student learnt about PAM demodulation
07/6/22	9.30-10.25 am	VI sem	echosuppressors, distortion & equalizers,	Students learnt about echosuppressors distortion & equalizers
07/6/22	10.25-11.20am	VI sem	MODEM - modes, classification	Students learnt about MODEM - modes, classification
08/6/22	10.30-12.25am	VI sem	PAM Modulation experiment & 555 timer IC explanation	Student performed PAM exp.
11/6/22	11.30-12.25pm	VI sem	RS232 interfacing	Students learnt about RS232 interfacing
13/6/22	9.30-10.25am	VI sem	RADAR - Principles, frequencies & powers used in RADAR	Students learnt about the basic principle & different frequency bands

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
13/6/22	2.00-4.30pm	VI sem	PWM experiment	demonstrated the PWM experiment.
14/6/22	9.30-10.25 am	VI sem	Maximum unambigous range	Students learnt about maximum unambigous range & factors affecting it
14/6/22	10.25-11.20am	VI sem	Block diagram of pulsed RADAR system.	Students understood about dig types of RADARS & pulsed RADAR
14/6/22	2.00-2.50pm	VI sem	RADAR range equation-derivation	Students learnt the derivation of RADAR range equation
15/6/22	2.00-2.50pm	VI sem	Factors influencing maximum range, Effect of ground on RADAR antenna characteristics	Students understood from derived equation factors affecting max range & effect of ground on antenna characteristics
20/6/22	9.30-10.25am	VI sem	Doppler Effect	Students learnt about doppler effect & relation of frequency with relative velocity

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
21/6/22	10.25-11.20 am	VI Sem	MTI Radar- Block diagram	Students learnt about MTI Radar
20/6/22	2.00-4.30pm	VI sem	PPM experiment (B_3, B_4 Batch)	Students performed PPM experiment
22/6/22	2.00-2.50pm	VI sem	CW Radar - Block diagram advantages, applications & limitations.	Students learnt about CW radar
22/6/22	9.30-12.25 am	VI sem	PPM experiment (B_1, B_2 batch)	Students performed PPM experiment
27/6/22	9.30-10.25am	VI sem	FMCW Radar - Block diagram.	Students learnt about FMCW Radar
27/6/22	2.00-4.30pm	VI sem	FSK experiment (B_3, B_4) batch	Students performed FSK experiment
28/6/22	10.25-11.20am	VI sem	Numerical examples related with Radar	Students were given practice on numerical problems
29/6/22	9.30-12.25pm	VI sem	FSK experiment (B_1, B_2) batch	Students performed FSK experiment.
29/6/22	2.00-2.50pm	VI sem	Introduction to Satellite Communication, need	Students were introduced to concepts of Satellite Communication

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
1/7/22	10.25-11.20am	II sem	Review of diode, semiconductor devices. transistors	Students were given a review of diode, transistors
20/7/22	2.00-2.50pm	VI sem	Satellite Orbits. Advantages & disadvantages of geostationary orbit	Students learnt about satellite orbits advantages & disadvantages of geostation orbit
21/7/22	10.25-11.20am	II sem	Varactor diode - introduction, symbol Construction	Student understand about varactor diode & construction details
22/7/22	10.25-11.20am	II sem	Varactor diode - characteristics working & applications	Students learnt about characteristics working & applications
25/7/22	9.30-10.25 am	VI sem	Satellite Visibility	Students learnt about Satellite visibility
23/7/22	10.25-1.20pm	VI sem	Band Elimination filter Experiment - B_1, B_2 batch	Students learnt about the band elimination filter
25/7/22	2-4.30pm	VI sem	Project Lab B_3, B_4 batch	Students were working on the projects
27/7/22	10.25-11.20 am	II sem	Schotty Diode - Introduction, Symbol & construction	Students learnt about Schotty diode - introduction symbol & construction

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
27/7/22	9.30-12.25 am	BSc VI sem	Microcontroller experiment - Addition (B_1, B_2 batch)	Students learnt and executed 1st experiment
27/7/22	2.00-2.50pm	BSc VI sem	Satellite System - Space segment	Students understood the space segment
28/7/22	9.30-12.20am	BSc VI sem	Project lab (B_3, B_4) batch	Students were soldering circuits for Projects
28/7/22	10.25-11.20 am	BSc VI sem	Schottky Diode - characteristics, working & applications.	Students learnt about characteristics, working & applications of Schottky Diode.
28/7/22	12.25-4.30 pm	BSc II sem	Parallel Adder/Subtractor Experiment.	Students demonstrated the parallel Adder/Subtractor experiment
29/7/22	10.25-11.20am	BSc II sem	Tunnel diode - Introduction, Symbol & construction	Students learnt about tunnel diode - introduction Symbol & construction

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
30/7/22	10.25-12.20 pm	BSc VI sem	Project lab (B_1, B_2)	Students were doing their project work.
01/8/22	9.30-10.25 am	BSc VI sem	Tunnel diode – characteristics, working and applications. Block diagram of Satellite subsystems, uplink, down link	Students learnt about characteristics, workings & applications. Satellite subsystems
02/8/22	9-3.00 -02.00 pm	BSc VI sem	crosslink transponders, effect of solar eclipse	Students learnt about cross link, transponders & effect of solar eclipse
2/8/22	2-4.30	BSc VI sem	Microcontroller lab Addition (B_3 - B_4 batch)	
2/8/22	9.30-10.25am	BSc VI sem	ground station, Simplified BD of earth station	Students learnt about earth station
2/8/22	10.25-11.20am	BSc VI sem	Satellite access – TDMA, FDMA, CDMA concepts, Comparison of TDMA & FDMA	Students learnt about multiple access techniques.
2/8/22	11.30-12.25pm	BSc II sem	Tunnel diode working, symbol	Students learnt about the working of tunnel diode

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
2/8/22	2.25 pm	BSc VI sem	Optical fibre communication need, Block diagram	Students learnt about need & BD of OFC
3/8/22	10.25-11.20 am	BSc II sem	Differential Amplifier	Students learnt about differential amplifier.
3/8/22	11.30-1.20pm	BSc VI sem	Microcontroller - Subtraction experiment	Students performed subtraction experiment
3/8/22	2.00-2.50pm	BSc VI sem	light propagation through fibre – step index & graded index fibres.	Students learnt about total internal reflection – step & graded index fibres.
4/8/22	10.25-11.20 am	BSc II sem	Block diagram of opamp. Characteristics of ideal & practical opamp	Students learnt about opamp & its characteristics.
4/8/22	9.30-10.25 11.30-12.20	BSc VI sem	Microcontrolled lab Subtraction (B_3 - B_4 batch)	Students executed the subtraction experiments
5/8/22	10.25-11.20 am	BSc II sem	Open & closed loop configuration, Frequency response, CMRR Slewrate	Students learnt about open & closed loop config. freq response

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
6/8/22	10.25-1.20 pm	BSc VI sem	Project Lab (B_1, B_2 Lab)	Students demonstrated their projects
8/8/22	2-4.30 pm	BSc VI sem	Microcontroller Lab - Multiplication of two 8 bit no:s (B_3 - B_4 batch)	Students were made to understand the logic & executed the program.
8/8/22	9.30-10.25 am	BSc VI sem	Snell's Law, Numerical Aperture Derivation	Students were taught about Snell's law & able to derive the NA equation
9/8/22	9.30-10.25 am	BSc VI sem	Types of optical fibre cables, light sources - requirements	Students understood about different types of optical fibre cables & requirements of light sources
9/8/22	10.25-11.20 am	BSc VI sem	LEDs & semiconductor laser diodes, Photodetectors - PN, PIN & avalanche photodiodes	Students learnt about light sources & photodetectors
9/8/22	11.30-12.25 pm	BSc II sem	Concept of virtual ground Applications of opamp. Concept of feedback - +ve & -ve feedback.	Students understood about the concept of virtual ground & concept of feedback

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
10/8/22	9.30-12.25	BSc VI sem	Microcontroller lab - Multiplication of two 8 bit no:s (B_1 - B_2 batch)	Students were made to understand the logic & executed the pgm.
10/8/22	2.00-2.50 pm	BSc VI sem	Losses in optical fibres - Rayleigh Scattering, Absorption, leaky modes	Students learnt losses in optical fibres.
11/8/22	9.30-10.25 am	BSc VI sem	Bending, Joint junction losses, Advantages & disadvantages of OFC over metallic cables	Students learnt about losses & advantages & disadv of OFC
11/8/22	10.25-11.25 am	BSc II sem	advantages of negative feedback inverting amplifier - derivation of voltage gain	Students learnt about adv of -ve feedback & inverting amplifier
11/8/22	12.25-4.30 pm	BSc II sem	Integrator, Differentiator experiments	Students performed experiment on integrator, differentiator
12/8/22	10.25-11.20 am	BSc II sem	Non inverting amplifier, Derivation of Gain, Numerical Problems.	Students were taught about non-inverting amplifier

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
13/8/22	10.25-1.20pm	BSc VI sem	Project lab (B_1, B_2)	Students demonstrated their projects
16/8/22	9.30-10.25 am	BSc VI sem	Concept of Cellular Mobile communication-cell & cell splitting	Students were introduced about the concept of cellular comm
16/8/22	10.25-11.20 am	BSc VI sem	frequency bands used in cellular communication	Students were aware of the freq bands used in cellular comm
16/8/22	11.30am-12.40pm	BSc II sem	Summing & Difference Amplifier	Students learnt about summing & difference Amplifier
17/8/22	9.30-12.25pm	BSc VI sem	Microcontroller experiment on Multiplication	Students performed the experiment
17/8/22	2-3pm	BSc VI sem	ARFCN frequency, roaming and hand off	Students were learnt about concept of ARFCN freq, roaming & hand off.
18/8/22	9.30-10.25	BSc VI sem	Authentication of SIM card of subscribers, IMEI no:	Students learnt about how to authenticate SIM card & IMEI no:

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
18/8/22	10.25-11.20am	BSc VI sem	Concept of data encryption architecture of cellular mobile communication network.	Students learnt about concept of Mobile & data encryption architecture
18/8/22	11.30am-12.25pm	BSc II sem	Differentiator & integrator	Students were understood differentiator & integrator
18/8/22	12.25-1.20pm	BSc VI sem	CDMA technology, CDMA overview	Students learnt about CDMA technology
18/8/22	2-4.30 pm	BSc II sem	High & low pass filter experiment	Students Demonstrated the high pass & low pass filter experiment.
19/8/22	9.30-10.25am	BSc VI sem	Simplified Block diagram of cellular Phone handset	Students understood about cellular phone handset internal BD.
19/8/22	10.25am-11.20am	BSc II sem	Comparator & Zero crossing detector	Students learnt about comparator & zero crossing detector.
20/8/22	10.25-1.30pm	BSc VI sem	Revision Lab	Students were given revision on lab exp
22/8/22	9.30-10.25pm	BSc VI sem	Comparative study of GSM & CDMA, 2G, 3G & 4G concepts	Students were learnt about 2G, 3G & 4G concepts

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
24/8/22	10.25-11.30am	BSc II sem	Filters: First order & 2nd order. low pass filter	Students learnt about low pass filter
31/8/22	10.25-11.30am	BSc II sem	1st & 2nd order HPFs BPF	Students learnt HPFs BPF
1/9/22	12.25-1.30pm	BSc II sem	Experiment on Adder, subtractor, Averager	Students demonstrated adder, subtractor & averager ckt
2/9/22	10.25-11.20am	BSc II sem	Oscillators Barkhausen Criteria for sustained oscillation	Students learnt about barkhausen criteria
12/9/22	2.00-2.50 pm	BSc II sem	Colpitt & Crystal Oscillators	Students learnt about Colpitt & Xtal Oscillator
13/9/22	10.25-11.20am	BSc II sem	Phase shift Oscillator Numerical problems Wien bridge oscillator	Students learnt about RC phase shift & wien bridge oscillator
13/9/22	11.20am-12.25pm	BSc II sem	IC 555 timer- introduction, Block Diagram	Students were introduced the concept of 555
15/9/22	10.25-11.20am	BSc II sem	Astable & Monostable Multivibrator circuits & Numerical problems	Students learnt about astable & monostable MV

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
15/9/22	12.25-4.30pm	BSc II sem	Experiment on Astable Multivibrator	Students performed experiment on astable MV
16/9/22	9.30-10.25 am	BSc II sem	JFET – type p channel & n channel working & IV chara of n channel JFET	Students learnt about JFET
16/9/22	10.25-11.20 am	BSc II sem	JFET parameters & their relationships, Comparison of BJT & JFET	Students were learnt about parameters & Comparison of BJT & JFET
20/9/22	11.30-12.25 pm	BSc II sem	MOSFET: E MOSFET, DMOSFET, n channel & p channel, constructions, working & symbols	Students were introduced to the concept of MOSFET
21/9/22	10.25-11.20am	BSc II sem	Biasing, drain & transfer chara of MOSFETs	Students understood drain & transfer chara of MOSFET
22/9/22	10.25-11.20am	BSc II sem	VMOS, UMOS, Power MOSFETs	Students were introduced to the concept of VMOS, UMOS, Power MOSFET

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
22/9/22	11:20-12:05pm	BSc II sem	MOS logic, Symbols & switching action of MOS, NMOS inverter CMOS logic, CMOS inverter circuit & working	Students learnt MOS & switching action
22/9/22	12:05-4:30pm	BSc II sem	Experiment on studying Comparator & Zero crossing detector	Students demonstrated comparator & Zero crossing detector
29/9/22	9:30-10:25 am	BSc II sem	CMOS characteristics, IGBT construction & Working, UJT construction, construction working, equivalent & IV chara, intrinsic stand off ratio, Relaxation Oscillator	Student learnt about CMOS chara, IGBT & UJT
29/9/22	10:25-11:20am	BSc II sem	SCR: Construction, working of HWR, FWR, diac, triac. Construction, working, characteristics & application	Students were introduced to the concept of HWR, FWR, diac & triac

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			*Familiarize students about functional blocks of 8085 * Introduce some Instr^n to 8085	
Content	Day 6 Day 7	V Sem	8085 Functionality of pins (40 pin) 8085 Instructions:- operational code, operand mnemonics.	2 hrs
Teaching Pedogogy			Self-learning & directive teaching through PPT & Question based learning.	
Unit II Teaching Objective			*Usage of Instr^n set of 8085 to students in writing program at Basic level.	
Content	Day 8 and Day 10.		Classification of Instruction Set of 8085 Addressing mode, types of Instruction set and its example. Arithmetic & Logical Instr^n	2 hrs.
Teaching Pedogogy			Student centric - discussion & enquiry based learning.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Explaining Student about Concept of interrupt & how it could be handle by 8085.	
Content	Day 11 & Day 12	V Sem	Stack operation & Microprogramming Stack operation, Subroutine Call, return operations, Delay loops & usage of counters, timing diagram Inst^n cycle, T-states time delay numericals.	2 hrs.
Teaching Pedogogy			Response to intervention based Podcast, project based teaching.	
Unit II Teaching Objective			Practicing the Student with basic Assembly level programm using discussed 8085 inst^n	
Content	Day 13 Day 14 Day 15 & Day 16.	V Sem	* pgm for Addition, Subtraction of 2 8 bit & 16 bit numbers. * Pgm to display Small / Large no. in a given array of no. * Pgm to sort an array in ascending & descending order.	4 hrs
Teaching Pedogogy			Experiential, logical programming practice on Black Board.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No. of Hrs Planned
UNIT I Teaching Objective			Discussing about the location with logical and computational [illegible]	
Content	2 Aug 18 8.8.18	1 5 min	Use of [illegible] in a given [illegible] Writing pseudocode for [illegible] problem. Comparison of [illegible] Flowchart. Advantages of [illegible] Algorithm. Algorithm to generate [illegible]	11 hrs
Teaching Pedagogy			Active learning & participative [illegible] learning techniques	
UNIT II Teaching Objective			Building the concept of interfacing to access the computable information of [illegible]	
Content	2 Aug 18 10.28.18 & 30		Basic Interfacing concepts. Comparison [illegible] I/O & memory mapped. [illegible] synchronous I/O data transfer techniques Programming Interface: Address decoding & RAM, ROM interface	5 hrs
Teaching Pedagogy			Differential learning & universal design for learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Practicing students to write blocks of Interfacing I/O and check the compatibility with 8085	
Content	Day 25 Day 26 Day 27 & Day 28	V sem	*Interfacing of O/P devices a. Keyboard (matrix type) b. LED. *PPI of 8255 - features, Configuration & port functions.	4 hrs
Teaching Pedogogy			Enquiry based learning & problem solving Technique. (PPT presentation with animation.	
Unit II Teaching Objective			* Explanatory lecture about fundamentals of units, measurement in Electronics.	
Content	Day 29 Day 30	V Sem	Electronic Systems, Transducers & Electronic Instruments. ⇒ Introduction to measurements ⇒ Defination, characteristics of Electronic instrumentation, Accuracy, resolution, precision etc.	2 hrs.
Teaching Pedogogy			Blended learning & Serious discussion with fundamental tools	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Introduce the continuous & discrete information, Piezo ion devices.	
Content	Day 37 38, 39 40	V Sem	Introduction to Biomedical Signals (Bio potentials) * Resting & Action potentials. Physiological transducers - Active & passive type transducers in medical application.	3 hrs
Teaching Pedogogy			Direct instruction based learning using Black board & PPT.	
Unit II Teaching Objective			Exposure for students to find functionality of real time medical equipments.	
Content	Day 40 41, 42 ,	V Sem	Brief measurement of ECG, EEG & EMG. Block diagram of ECG & EEG machines.	2 hrs.
Teaching Pedogogy			Application based teaching with PPT & animation.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No. of Hrs Planned
Unit I Teaching Objective			To apply logic, Hardware & basic [illegible] knowledge for [illegible] [illegible] fields, e.g. [illegible]	
Content	Day 1 Day 2 & 3	1st sem	Unit I: [illegible] Hardware & Software, [illegible] [illegible] for [illegible] [illegible] positional and non positional, [illegible], decimal, etc., Digitizer, definition, digital, [illegible] number.	4 hrs.
Teaching Pedogogy			Blended learning and [illegible] discussion using flipclass technique.	
Unit II Teaching Objective			To differentiate between the decimal & Binary, octal number & its conversion.	
Content	Day 5 6, 7 & 8	1st sem	Binary no. system - Bit, Byte Decimal to Binary no. system Binary to decimal no. system. Octal no. system - * Conversion of octal to decimal. * — " — decimal to octal. * — " — octal to Binary. * — " — Binary to octal.	4 hrs.
Teaching Pedogogy			Active learning & formative assessment technique using Black board.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Ability to design/develop /manage operation & maintenance of Sophisticated binary systems	
Content	Day 9 10, 11 & 12	I Sem	Hexadecimal no. system- Hexadecimal to decimal. decimal to Hexadecimal. Hexa to Binary. Binary to Hexa. Hexa to octal octal to Hexa	4 hrs.
Teaching Pedogogy			Student centric discussion & Enquiry based learning using PPT.	
Unit II Teaching Objective			To acquire Experimental Skills analysing the result in Arithmetic & logic operation.	
Content	Day 13 14, 15, 16 & 17	I st Sem	Arithmetic & logic operation:- Addition, Subtraction, multiplication division. 1's, 2's Compliment Subtraction by 2's Compliment. BCD code- 8421 & 2421 Code. Gray Code- Gray to Binary Binary to Gray. Appl	5 hrs
Teaching Pedogogy			Response based intervention Podcast, Project based teaching	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I				
Teaching Objective			To identify the implementation of information protocol's in digital system.	
Content	Day 18 19 & 20	I st Sem	Excess-3 Code - Self Compliment ASCII- Code - Introduction to error detection and correction code, parity check	5hrs
Teaching Pedogogy			Class room flipping & mind map ping using PPT & animation	
Unit II				
Teaching Objective			To identify & formulate to solve the electronics related issues & analyse the problems in electronics	
Content	Day 20 21, 22, 23	I st Sem	Boolean law & theorem, functions of AND, OR, NOT Commutative law, associative & distributive law., duality. Demorgans theorem.- proof using truth table. Simplification of Boolean algebra	4 hrs
Teaching Pedogogy			Instructional design & by adaptive learning by Chalk & talk method.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Logical Circuit fundamental demon-stration with function & applica-tions.	
Content	Day 24 25 & 26 & 27	I st Sem	Logic gates :- AND gate :- Def^n, Truth table Pin diagram of 7408. OR gate :- Def^n, TT, Pin diagram 7432 NOT gate :- — " — " — 7404 NAND gate :- — " — 7400	4 hrs
Teaching Pedogogy			Direct instruction based learning using block board & PPT	
Unit II Teaching Objective			Simplification of various electronic problems in standard boolean Algebra.	
Content	Day 28 29 & 30 31		NOR gate :- — " — 7402 XOR gate :- — " — Def^n of POS and SOP in standard form. Conversion of standard SOP & POS forms. minterms and maxterms.	5 hrs
Teaching Pedogogy			Logical teaching by simplification of Boolean problems in Block board	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Demonstration of graphical simplification methods in Boolean Algebraic problems.	
Content	Day 32 33, 34, 35 35, 36	I st Sem	K-map defination, K-map for 2, 3, and 4 variables. Conversion of Truth table into K-map grouping of cells.	5 hrs
Teaching Pedogogy			Enquiry based learning & problem solving technique using Black board & PPT	
Unit II Teaching Objective			To make student confident in simplifying complex digital functions.	
Content	Day 37 38, 39, 40 Day 41 42, 43, 44 45.		Dont care condition to solve 3 variable & 4 variable of Expression. Simplification of 3 & 4 variable K-map in SOP form only.	9 hrs.
Teaching Pedogogy			Self learning & directive teaching through questioning & solving technique on Blackboard	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
15/11/2021	10:25 to 11:20	V th Sem	Microprocessor and Electronic Instrumentation: Syllubus introduction & pattern of Subject & inter relate it to 4th sem Syllubus.	Clear outline for the Student about Syllubus & its application.
16/11/2021	11:30 to 12:25	V th Sem	Introduction to Microprocessor & computer architecture, Features.	Student will learn how to relate computer to IC.
16/11/2021	2:50 to 3:40 PM	V th Sem.	Block diagram of computer system functional blocks.	Clarification on generation of PC (CPU)
18/11/2021	2:50 to 3:40 PM	III rd Sem	Fundamentals of programming Language.	Students will learn outlines of programming languages.
29/11/2021	10:25 to 11:20	I th Sem	wide clarification of microprocessor - of with Examples	Students were exposed to wide variety of IC'S. programable.
30/11 2021	11:30 to 12:25	V Sem	Comparision b/w microprocessor 80825, 80835 & ARM processor families.	Student were able to differentiate IC in device

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
30/11 2021	2:50 Pm to 3:40 Pm	V Sem	Architecture of Microprocessor 8085	Students will know Graphical abstraction of 8085.
01/12 2021	2:50 to 3:40	V Sem	Fundamentals of no. System.	Teaching fundamentals of no. System. Students can able to configure
01/12 2021	2:50 Pm to 3:40 Pm	V Sem	Pin configuration & Applications of 8085	the 8085 with I/O & memory
01/12 2021	11:00 AM to 12:25 pm.	V Sem	Relating the functionality of Architecture with 8085 pins	Students will be able to identify the appl^n of 8085.
07/12 2021	11:20 AM to 12:25 PM	V Sem	Features of block diagram in 8085 MP	Relational study of 8085 architecture with.
07/12 2021	2:55 to 3:40 PM	V Sem	——— || ———	Functional Block diagram

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
08/12 2021	9:30 to 11:30 AM	V sem	The Register unit and control unit blocks study in 8085.	Student will learn how the internal blocks are functioning in 8085.
08/12 2021	12:25 PM to 1:20 PM	I st Sem	Positional / non positional number	Student will know the place value of No. system
10/12 2021	12:25 PM to 1:20 PM	I st Sem	Base/Radix number systems	To know how to change place value in no. system
13/12 2021	10:20 AM to 11:25 PM	V th Sem	The flag registers in 8085. with examples.	Students will be able to identify the status of Accumulator
14/12 2021	12:50 PM to 12:55 PM	V th Sem.	Mux/Address & data bus, generation of control signal with pin discription of Microprocessor 8085.	Kinesthetic problem solving technique with present architecture of 8085

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
14/12 2021	2:55 to 3:40 PM	V^th Sem	8085 instruction- OP Code & operands & mnemonic n.	To make. under start basic format of mnemonic.
16/12 2021	10:20 to 11:20 AM	V^th Sem	Classification of Instruction based on size of Inst^n	To understand how instruction was classified.
16/12 2021	12:25 to 1:20 PM	I^st Sem	Decimal and Binary number system.	To practice students to know about no, base system.
18/12 2021	12:25 to 11:20 AM	I^st Sem	Bit, Byte, Conversion: Binary to decimal vice versa.	To practice students to no, Conversion from Binary to Decimal.
20/12 2021	10:25 AM to 11:20 AM	V^th Sem	Classification of instraction based on mode of operation.	To know the basic tree of instruction in 8085.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
21/12 2021	10:30 to 12:20	V th Sem	Addressing modes in 8085	Student will learn how to write the Mnemonics for desired application.
21/12 2021	2:55 to 3:40 PM	V th Sem	Addressing modes in 8085.	
22/12 2021	12:25 to 1:20 PM	I st Sem	Octal & Hexadecimal no. system Conversion of Decimal to hexa and octal No.	To Learn how to convert no. from base 10 to base 8 & 16 no.
24/12 2021	12:25 to 1:20 PM	I st Sem	Leave and class adjusted to Thulasi madam.	
25/12 2021	12:25 to 1:20 PM	I st Sem	Problem solving with no. system.	To gain Practicle knowledge in no. system conversion.
27/12 2021	10:25 to 11:20 AM	V th Sem	Data transfer instructions.	Students will able to know how to copy the contents b/w Reg. & memory.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
27/12 2021	2:00 to 3:30 PM	V th Sem	Arithmetic instructions in 8085.	Students will able to identify the operational Codes for arithmetic & logical operation & written simple program.
28/12 2021	11:25 to 12:20 PM	V th Sem	Logical Instructions in 8085.	
28/12 2021	2:50 to 3:40 PM	I th Sem	Bit manipulation instructions in 8085	With the help of operational Code Students will be able to switch the execution control and manipulate the operation of 8085.
29/12 2021	9:30 to 10:30	I th Sem	Branching & machine Control instructions in 8085.	
29/12 2021	12:20 to 1:20	I st Sem	Problem solving solution for Base/Radix no.	Practicing the no. system conversion.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
30/12 2021	11:20 12:20	V th Sem	Timing diagram & Time delay in 8085	Graphical representation of operation was taught.
30/12 2021	12:20 to 1:20	I st Sem	Binary Arithmetic operation Adition and Subtraction op^n.	To make student to perform arithmetic op^n with examples.
31/12 2021	12:20 to 1:20	I st Sem	← LEAVE → Class adjusted to thulasi madam.	
01/01 2022.	12:20 to 1:20 PM	I st Sem	Binary Arithmetic operation - Example solving technique.	To solve Example's of adition & subtraction of various no, left & rts.
02/01 2022	9:30 to 10:30 AM	V th Sem	Pgm of Adition of 2' 8 bit No's.	Students will be able to add two 8 bit no.
02/01 2022	12:20 to 1:20 PM	I st Sem.	Binary Subtraction & Its operation for Appl^n	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
04/01 2022	10:25 to 11:15 Am	V Sem.	ALP Pgm of Subtraction of two 8 bit No, & 16 bit No,	Practice Students to write program & understand and usage of Operators.
05/01 2022	11:25 to 12:20 Am.	V th Sem	ALP Pgm of Subtraction & looping program of 8bit	
05/01 2022	2:55 to 3:45 PM	V th Sem	ALP to find largest & Smallest No, in ~~ending~~ MC	
06/01 2022	12:25 to 1:20 PM	I st Sem	Boolean laws & theorem, Combinational laws & Operation of SOP & POS	Students will practice ~~to~~ write logical Circuits.
06/01 2022	9:30 to 11:30	V th Sem	Introduction to Biomedical Potential in derting & motion	The interrelation with respect to Medical field

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
07/01 2022	10:30 to 11:30 AM	V th Sem.	Block diagram Of ECG & EEG machines	Students are able to identify the medical blocks.
11/01 2022	10/30 to 11:30 Am	V th Sem	Applications Of Biomedical Appliances presently using in Hospitals.	Students will be exposed to real time Application

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Unit-1 :- Introduction to MC: Basic block diagram, Comparison with MICRO	
Content	17-05-2022 to 18-05-2022	BSc VI th Sem	Processor, Classification of MC based on word length, overview of 8051, 3582, 31, and other families of MC 89C420, 440, 450 & SIMEL AT 89C51, AT 89LV51 etc.	3 hrs.
Teaching Pedogogy			Kinesthetic learning & differentiated instruction.	
Unit II Teaching Objective			The Student will be learn the features of 8051, and need to discuss & make Student through writing Configuration of 8051	
Content		BSc VI th Sem.	MC 8051 ; Architecture of 8051 internal block diagram, Feature Pin diagram of 8051 MC	3 hrs
Teaching Pedogogy			Test enhanced learning : using retrieval practice to help Student to learn	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			Fundamentals of memory & its internal organization with 8051 in Various Configuration.	
Content		BSc(E) VI th Sem.	Memory organization: Internal RAM of 8051 General/Special purpose registers, program & data memory in 8051, External memory.	3 hrs
Teaching Pedogogy			enquiry based learning & Co-operative learning	
Unit II Teaching Objective			Knowledge of configuring the timer/counters using Specific timer register has been taught.	
Content		BSc(E) VI th Sem.	Timer/counters: oscillator, Clock Program counter, TCON, TMOD, interrupts timer mode operation	3 hrs.
Teaching Pedogogy			Direct instruction & expidition learning.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			The Students has to practice how the External devices can be Connect and build a Connectivity.	
Content		BSc(E) VI th Sem	Input and output Configuration in 8051, Serial Commmunication in 8051. using SCON, PCON Register various mode.	3 hrs.
Teaching Pedogogy			Group discussion methode & ICT based learning.	
Unit II Teaching Objective			Describing the interrupt Concept Software / hardware interrupts with 8051 Configured pins.	
Content		BSc(E) VI th Sem.	Unit 2: 8051 interrupts IE, IP timer flag interrupt, Serial port External interrupts, reset, interrupt Control and its priority interrupt destin ation, Software, interrupts	3 Hrs.
Teaching Pedogogy			Chalk & Talk, instruction based learning.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			The students will be Exposed to software development field in 8051 by writing program.	
Content		BSc(E) 6th Sem.	Addressing modes :- immediate, regi ster, direct & indirect addressing mode. Instruction set in 8051 : Data transfer inst^n, Internal, External data Exchange code remembing	3 hrs
Teaching Pedogogy			ICT based learning, Chalk & talk.	
Unit II Teaching Objective			Student will learn the limitation of 8051 programing	
Content		BSC(E) 6th Sem	Stack programing & PUSH & Pop instruction, logical instructions :- byte / bit level logical operation, rotation swap operations	3 hrs
Teaching Pedogogy			Direct instruction & group discussion	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			The basic operations of detailed program for arithmetic operation using 8051	
Teaching Objective				
Content		BSc(E) 6th Sem	Arithematic instruction :- addn Subn, multiplication, division & increment & decrement instn working Example of pgms in ALP	3hrs.
Teaching Pedogogy			Chalk & talk, game based learning methods	
Unit II			Students centric learning methods to teach them to write Branch type instruction programming.	
Teaching Objective				
Content		BSc(E) 6th Sem	Unit 3:- Jump & Call instn : Range of jump location, Subroutine in 8051 ; Simple ALP for practice.	3 hrs.
Teaching Pedogogy			Test enhanced learning process	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			To practice Students to write ALP on I/O Operations.	
Teaching Objective				
Content		BSc(E) 6th sem	8051 pgm, using C, I/O Operation logical opn, data conversion pgm time delay program, ROM Space fetching, data serialization	3hrs
Teaching Pedogogy			Chalk & talk, Direct instruction based learning	
Unit II			The Basic Concept to program the 8051 timers/counters using C.	
Teaching Objective				
Content		BSc(E) 6th Sem	Timer /Counter program in 8051 program to Configure timer 0 timer 1, Example program.	3 hrs
Teaching Pedogogy			Instruction based learning Group discussion	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			The Student will be learning to Configure I/O devices including Timers in 8051 MC.	
Content		BSC(E) 6th Sem.	Unit 4:- Interfacing with 8051 Basic Concepts, Pgming in 8051 interrupt, timer interrupt. Pgm External hardware interrupt Schematic & basic concept	3 hrs
Teaching Pedogogy			Instruction based learning. ICT based learning.	
Unit II Teaching Objective			To Explain the function of Interfacing Circuit & PIC MC Classification & interface	
Content		BSC 6th Sem.	of interfacing of 8051 & Keypad Seven Segment display, Stepper motor DAC/ADC traffic light Control Unit 5:- PIC MC, features of PIC, Overview PIC Series, PIC 16F8, 77A, features, PIN diagram, IO ports with LED	3hrs.
Teaching Pedogogy			Chalk & Talk, PPT Presentation kinesthetic learning	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I Teaching Objective			The Basic fundamentals of programming language & digital system was discussed.	
Content		BSC(E) IVth Sem	Unit 4:- Introduction to verilog History of HDL, HDL module, Comparison of Verilog & HDL. Verilog:- module, Delays, brief description. mixed design style.	4 hrs
Teaching Pedogogy			Direct instruction. Inquiry based learning. PPT presentation	
Unit II Teaching Objective			The Student will get to know how to convert logic function into a circuit using K-maps & Pgm	
Content		BSC(E) IVth Sem	Language Elements: Introduction keywords, Identifiers, white space Characters etc. Data types:- net types, undeclared nets, Vector nets, Reg, type real & Strings, parameters	4 hrs
Teaching Pedogogy			Chalk & talk, Inquiry based learning, Instn based learning.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			The students are able to differentiate the various datatypes & instances to write code.	
Teaching Objective				
Content		BSc(E) IV th Sem	Expressions :- Operands, operators. Gate level modelling :- Built in primitives, Multiple input & output gates, array instances.	4 hrs
Teaching Pedogogy			ICT based Explanation, Direct instruction, game based learning	
Unit II			Students will be practice to write programming.	
Teaching Objective				
Content		BSc(E) IV th Sem	implicit nets, Illustrative Example (for both Combinational & Sequential circuit) Data flow modelling :- Continuous assignment, net declaration delays, net delays & Example.	4 hrs
Teaching Pedogogy			Chalk & talk, Kinesthetic learning, Direct instruction.	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I			The students will be able to write program in Behavioral style. & writing testing Code.	
Teaching Objective				
Content		BSc(E) IV th Sem.	Behavioral modelling :- procedure construction, timing controls, block statement, procedural assignment, Conditional Loop, procedural, Illustrative Example.	4 Hrs
Teaching Pedogogy			Chalk & talk, Direct instruction Test enhance learning.	
Unit II				
Teaching Objective				
Content				
Teaching Pedogogy				

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
17/5	9:30 to 10:20 AM	BSc 6th Sem	Introduction to Microcontroller and processor History.	Clear Structure of processor's & its boundaries
17/5	2:00 to 2:50 AM	BSc 6th Sem	Basic Block diagram of MC, Comparison of MC with MP	Tought basic structure & understandings of MC with MP.
17/5	3:45 to 4:30 PM	BSc 6th Sem	Classification of MC with wordlength, overview of 8051, 32, 52 etc	Wide varity of 8051 family & ATMEL were briefed.
18/5	9:30 to 10:30 AM	BSc 6th Sem	Comparison of Various classes of MC 89C420, ATMEL family	
23/5	9:30 to 10:20 AM	BSc 4th Sem	Introduction to programming Language, differentiation b/w HDL & Assembly level pgm.	Creating clear view for basic understanding of HDL pgming.
23/5	2:00 to 2:50 PM	BSc 6th Sem	Features of 8051 microcontroller	Student was lear outlines of 8051 MC
24/5	9:30 to 10:20	BSc 6th Sem	Architecture of 8051 MC.	Graphical visualization of Blocks of 8051

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
24/5	2:00 to 2:50 PM	B.Sc 6th Sem	Block Explanation of Architecture with its internal block diagram	The clear skeletal blocks of 8051 MC makes is understand to the students
24/5	3:45 to 4:30 PM	B.Sc 6th Sem	Usage of SFR, ALU, IR, SP and Timers in 8051 MC	
26/5	9:30 to 10:20 PM	BSc 6th Sem	PIN Configuration of 8051	The Graphical Visualization of IC 8051 with all configuration.
27/5	9:30 to 10:20	BSc 4th Sem	Introduction to VHDL & Verilog programing & Module.	Defination of Concept & comparision knowledge.
30/5	9:30 to 10:20	BSc 4th Sem	Syntax of module, types of writing Verilog module.	Students can understand how to identify modules & instances.
02/6	9:30 to 10:20	BSc 6th Sem	Fundamental Concepts of memory & its types	Basic Knowledge of binary into storage is learnt

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
06/6	9:30 Am to 10:20 Am	BSc IV th Sem	mixed mode style, Behavioural Dataflow style of writing verilog	Thought Construction of verilog pgm.
09/6	2:50 PM to 3:45	BSc 4th Sem	working with verilog program for basic gates in Dataflow style.	Practice of writing Verilog Program for Basic gates in all 4 style of modules
13/6	9:30 Am to 10:20 Am	B.Sc 4th Sem	working with verilog program for basic gates in Behavioural style	
16/6	2:50 PM to 3:45 PM	BSc 4th Sem	working with verilog pgm for basic gates using Structural style.	
20/6	9:30 Am to 10:20 Am	B.Sc 4th Sem	Language Elements in Verilog, Keywords, numbers instances, constants, module names	elementary knowledge of opcodes used in library of Verilog.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
21/6	9:30 Am to 10:20 Am	BSc 6th Sem	General organisation of RAM and ROM internal/External.	Student will able to understand how 8051 MC is configured to use internal memory & also an External memory.
21/6	2:00 PM to 2:50 PM	BSc 6th Sem	Interfacing of External RAM and ROM to 8051 MC.	
21/6	3:45 to 4:30 PM	BSc 6th Sem	Configuration of data memory and Code memory.	
23/6	2:50 to 3:45 PM	B.Sc 4th Sem	Identifiers, white space, characters used in verilog HDL	Student will be able to use elements in pgm,
27/6	9:30 Am to 10:20 Am	B.Sc 4th Sem	Data types: net type, unidentified net, Vector type nets	make student to familiar about elements

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
28/6	9:30 AM to 10:20 AM	BSc 6th Sem	Timer/Counters in 8051 Oscillators function in 8051	Students will be able to configure the Timer in 8051 program & can be utilized in many application of clock generator.
28/6	2:00 PM to 2:50 PM	B.Sc 6th Sem	Program to configure the TCON/TMOD registers in 8051	
28/6	3:45 PM to 4:30 PM	B.Sc 6th Sem	Program to configure the timer 0 & timer 1 mode of operation.	
04/7	9:30 AM to 10:20 AM	BSc 4th Sem	Expressions, Operand, operator Gate level Modelling: Built in premitives.	Student will know various types of operator & expressions.
04/7	2:00 PM to 2:50 PM	B.Sc 6th Sem	I/O configuration of 8051, Serial communication using SCON & PCON Reg.	Knowledge of connecting I/O through serial port

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
05/7	9:30 to 10:20 AM	BSc 6th Sem	Interrupts in 8051, IE, IP register configuration & Software way of pgming	Deep learning process of Interrupts in 8051
05/7	2:00 PM to 2:50 PM	BSc 6th Sem	Addressing modes, Instruction set in 8051, Data transfer instr^n	Students will get clear picture of Assemble level primitives to transfer data & logical op^n
05/7	3:45 to 4:30 PM	BSc 6th Sem	Logical instructions and Example programs in ALP	
09/7	9:30 to 10:20 AM	B.Sc 4th Sem	Gate level Modelling: multiple in/out gates & array declaration & Time delay.	Students able to know how structural pgm can be implement
11/7	9:30 to 10:20 AM	BSc 6th Sem	Arithmetic instruction:- Keywords for add^n, Sub^n, Div^n & multiplication with example	Practice ALP based on Arithmetic & Loop based Programmes
12/7	9:30 to 10:20 AM	BSc 6th Sem	JUMP & CALL instructions:- Loop based ALP for practice	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
12/7	2:00 to 2:50 PM	BSc 6th Sem	8051 programming usin 'C'. Datatypes & IO programing & Timer program as interrupt	Knowledge of embedded C programing & to enable 8051 program for Time delay
12/7	3:45 to 4:30 PM	BSc 6th Sem	Time delay program as I/O & interrup function of T0 & T1	
13/7	9:30 to 10:30 AM	BSc 4th Sem	Working Examples using gate level datatypes	Example practice with gate level model
13/7	2:00 PM to 2:50 PM	BSc 6th Sem	Configuring Timer Register & Counter operation at Various mode.	Students will be able to understant Timer Conf^n in 8051
14/7	2:50 to 3:45 PM	BSc 4th Sem	Defining nets and various Examples without	Problem solving using net type datatypes
14/7	3:45 to 4:00	BSc 4th Sem.	Data flow modelling: Continuous assignment, net declaration, Delays in 3 types	Depth knowledge on Dataflow Style delay declaration.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
15/7	9:30 to 10:20 AM	BSc 4th Sem	Behavioural Style of verilog pgm introduction & module Syntax	Students were able to understant art of Behavioural Constraints & practice of programs for various digital circuit
18/7	9:30 to 10:20 AM	BSc 4th Sem	Block statements declaration Loop Statement declaration.	
18/7	2:55 to 3:45 PM	BSc 4th Sem	procedural statement & sample program for solution	
19/7	9:30 to 10:20 AM	BSc 6th Sem	Interfacing :- Basic Concepts Key board interfacing of 8051	Students were able to Know How to Connect general peripheral devices to 8051 µC. Practice of Sample C codes for interfacing also learnt
19/7	10:20 to 12:50 PM	BSc 6th Sem	Explanation of Seven Segment display & working of Stepper motor	
19/7	2:00 to 4:50 PM	BSc 6th Sem	ADC/DAC interfacing to 8051 Application: Traffic Light Control design.	

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
11/9	B.Sc 6th Sem	3:45 to 4:30 PM	Introduction to PIC Micro controller & its features.	clear structure of way of PIC microcontroller design was learnt
			LABS converted to Class.	
20/9	B.Sc 6th Sem	9:30 to 10:20 AM	Block diagram of PIC 16C and internal parts of PIC.	Pictorial view of pin configuration PIC.
20/9	B.Sc 6th Sem	10:30 to 11:30 AM	Overview of various families of PIC Microcontroller.	classification of PIC with varity of application.
26/9	B.Sc 4th Sem	9:30 to 10:20 AM	Practicing of Verilog pgm for comparator, Mux, Demux.	exercising verilog program for students.
26/9	B.Sc 6th Sem	9:30 to 10:20 AM	Debugging of complete syllabus and few examples of ALP was discussed	Revision of complete syllabus including ALP practice.

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LESSON EXECUTION

Date	Time	Class	Contents	Learning outcome
8/8	B.Sc 6th Sem	VI Sem	Revision of old QP of 2016 & 2019	Practice for students about Exams
16/8	B.Sc 6th Sem	VI Sem	Revision class for whole syllabus with question bank practice.	Practice of Practical Exam & theory Exam.
23/8	B.Sc 6th Sem 9:30 AM to 1:30 PM	VI Sem	QP of 2018, 2019 preparations viva-voce practice for all experiment in Electronic project & Preparation	
13/8	11:30 to 12:30	IV th Sem	Practicing of old QP of 2016, 17 & 18 and also work out of question bank	Practice of old Q.P for improvement of quality in results.
20/8	11:30 to 12:30	IV th Sem		

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LESSON PLAN SUBJECT – II

SUBJECT CODE :	1.3	SUBJECT NAME :	BUSINESS PLANNING & REGULATIONS
SEMESTER :	I	NUMBER OF HOURS PER WEEK :	4 HRS / 4 CREDITS
CLASS STRENGTH :	56	FACULTY NAME :	Dr. CHAKRAPANI GOPAL

Week	Date		Hour/s	Topic to be covered	Pedagogy used
1			1	Components of Business planning	Lecture / PPT
			2	Market planning	Lecture / PPT
			3	Financial planning	Lecture / PPT
			4	HR planning	Lecture / PPT
2			5	Production planning, R & D planning	Lecture / PPT
			6	Biz planning presentation	Presentation
			7	Biz planning presentation	Presentation
			8	Detailed review of Biz plan	Assignment
3			9	Economic factors	Lecture / PPT
			10	Claim & claim factors	Lecture
			11	New economic policy, make in India, Second Gen. reforms	Lecture / PPT
			12	Role of Agriculture, extent of form & problems	Lecture
4			13	Agenda for Action, Agricultural policy, National commission Farmers	Lecture / PPT
			14	Industrial policy 1948, 56, 91	Lecture / PPT
			15	Finance, Mktg, Banking, Insurance, Healthcare, Education	Lecture
5			16	Travel & Journalism, telecommunication transport	Lecture
			17	Agreement & contract, essentials of contract, classification	Lecture / PPT
6			18	Remedies for breach of contract	Lecture
			19	Promissory note, banking exchange	Lecture
			20	Compact Act – 2013 – Principles formation MOA & AOA	Lecture / PPT
			21	Compact Act 2017	Lecture / PPT
7			22	Prospectus power, Duties and liabilities of Directors	Lecture / PPT
			23	Winding up of companies	Lecture / PPT
			24	Trade mark, Patents	Lecture / PPT
			25	Copyright, Trade	Lecture / PPT
8			26	Geographical indications	Lecture
			27	Review of module 3	Lecture / PPT
9			28	Consumer disputes complaints	Lecture / PPT
			29	Case – Real time	Case

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			30	Unfair trade practices, restricted trade practices	Lecture
			31	Readressal of consumer dispute, state commission	Lecture
10			32	National commission, procedure applicable to the National commission	Lecture / PPT
			33	Consumer protection councils	Lecture / PPT
			34	Cyber Law in India	Lecture / PPT
			35	Salient features of IT	Lecture
11			36	Act Digital signature	Lecture / PPT
			37	Discussion – IT Laws	Lecture
			38	Case Study – IT	case
			39	Environment protection Act 1986	Lecture
12			40	Salient features of the Act	Lecture
			41	Global warming	case
			42	Global warming continued	Lecture
			43	Sustainable development	Discussions
13			44	Review of Module 5	Discussions
			45	Labor compliance in India, Laws of wages	Lecture
			46	Social security	Lecture / PPT
			47	Industrial safety & welfare	Lecture / PPT
14			48	Industrial relations	Lecture
			49	Sexual Harassment of Women at workplace prevention	Lecture
			50	Prohibition and Redressal Act 2013	Lecture / discussion
			51	Review of various acts	Lecture / PPT
15			52	Practice sessions	cases
			53	Practice sessions	cases
			54	Discussions – cases (3 hrs)	cases

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LESSON PLAN SUBJECT – II

SUBJECT CODE :	1.5	SUBJECT NAME :	CORPORATE ADMINISTRATION
SEMESTER :	I	NUMBER OF HOURS PER WEEK :	4 HRS
CLASS STRENGTH :	53	FACULTY NAME :	Mr. AJAY KRISHNA A

Week	Date		Hour/s	Topic to be covered	Pedagogy used
1			1	Introduction to corporate admin	Lecture
			2	Key managerial personnel	Lecture
			3	Managing Director	Lecture
			4	Whole time Director	Lecture
2			5	Company secretary	Presentation
			6	Auditors – Introduction	Lecture
			7	Auditors – Powers, duty, etc	Lecture
			8	Managing Director	Lecture
3			9	M.D – Appointment, power	Lecture
			10	MD – power, duty & responsibility	Lecture
			11	Audit committee & CSE committee	Lecture
			12	Company secretary	Lecture
4			13	Company secretary	Lecture
			14	Company secretary	Lecture
			15	Corporate meetings	Introduction
			16	Statutory meetings	Lecture
5			17	Annual General meeting	Demo
			18	Extra – ordinary G M	Demo
			19	Board meeting	Lecture
			20	Requisites of valid meeting resolution	Lecture
6			21	Resolution and types	Lecture
			22	Preparation agenda	Activity
			23	Winding upto company	Introduction
			24	Official liquidator	Lecture
7			25	Official liquidator	Lecture
			26	Consequences of winding up	Lecture
			27	Meaning of CSR	Presentation
			28	Scope of CSR provision	Presentation
8			29	CSR legislation	Briefing

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LESSON PLAN SUBJECT – II

SUBJECT CODE :	1.7	SUBJECT NAME :	ESD - I
SEMESTER :	I	NUMBER OF HOURS PER WEEK :	2 HRS
CLASS STRENGTH :	60	FACULTY NAME :	Dr. BINDU NAMBIAR

Week	Date		Hour/s	Topic to be covered	Pedagogy used
1			1	Employability Skills	Lecture map frame Ice Break
			2	Learn about self. Self/Peer/Teacher appearance	Activities
			3	SWOC analysis	Game & analysis, SWO & chat
			4	How self concept can affect job performance	Videos/lecture/chat
2			5	Relating personal priority to professional priority	Brain storming
			6	Employer perception on employability skills	HR Manager Talks & videos
			7	Basics of language & grammar	English faculty
			8	Basics of verbal communication and types	PPT activity
3			9	Effective interaction skills	Twinning games / group game
			10	Telephonic conversational skills, etiquette / calls mgmt / messages	Simulation / role playing
			11	Using digital skills, knowing then social media, online profile management	GL
			12	Non verbal communication	Role play
4			13	Writing effective email & professional mails	Live Demo
			14	Business meeting preparation	Simulation
			15	Business meeting	Live meeting
5			16	Interpersonal skills	Lecture / video
			17	Transaction analysis – ELOSTATE	Group dynamics
			18	Team management	Game – bonding, handle positive attitude, empathy, trust
			19	Positive relationship	Activity
			20	Time Management	To do list, time wastes
6			21	Time Management techniques – Individual	Activity & lecture
			22	Time management in Team	Game based
			23	Stress management	Lectures

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			24	Emotional intelligence	Lectures
7			25	Career planning	Activity based, experimental learning
			26	Planning Promotions, Career changes, Exit, websites	
			27	Career plan	
			28	Resume – Writing	Assignment individual
8			29	Resume – Refined	Structure & tool based
			30	Cover letter – followup messages	Activity

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LESSON PLAN SUBJECT – II

SUBJECT CODE :	SUBJECT NAME : HUMAN RESOURCE MANAGEMENT
SEMESTER :	NUMBER OF HOURS PER WEEK : 4 HRS / 4 CREDITS
CLASS STRENGTH :	FACULTY NAME : Dr. PRIYANKA

Week	Date		Hour/s	Topic to be covered	Pedagogy used
1			1	Potential app. & HRM	PPT / Lecture
			1	Emerging Trends in Pot. App	PPT / Lecture
			1	Presentation	PPT / Lecture
			1	Case study	PPT / Lecture
2			1	Team perf. Mgt. Intro	PPT / Lecture
			1	Team building process, types of team	PPT / Lecture
			1	Type of team, Role of team leaders	PPT / Lecture
			1	Role of team leader, Drivers of perf.	PPT / Lecture
3			1	Designing App. Programs	PPT / Lecture / video
			1	Conducting app - Individual	PPT / Lecture / story
			1	Conducting app – Team	PPT / Lecture
			1	Feedback mech. Inding team	PPT / Lecture / R P
4			1	Rewards – individuals	PPT / Lecture / story
			1	Rewards - teams	PPT / Lecture
			1	Team activity	Activity
5			1	Case study	Activity
			1	Perf. Appraisal : objectives & process	PPT / Lecture
6			1	Perf. Appraisal advantages	PPT / Lecture
			1	Perf. Appraisal disadvantages	PPT / Lecture
			1	Methods of appraisal – past	PPT / Lecture
			1	Methods of appraisal – present	PPT / Lecture
7			1	Methods of appraisal – future	PPT / Lecture
			1	Case study	Case method
			1	Activity	Student lead
			1	Collection of Data through PA	PPT / Lecture
8			1	Presentation of PI Data	PPT / Lecture
			1	Corrective Action	PPT / Lecture
			1	P M guidelines	PPT / Lecture
9			1	Checklist for Managers	PPT / Lecture
			1	Common problem in assessment	PPT / Lecture
			1	Activity	Case study / via role play
			1	Management of performance	PPT / Lecture

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10			1	Identifying gaps & active perfect strategies	PPT / Lecture
			1	Creative perfect strategies	Activity
			1	GOOGLE	Case study
			1	Presentation	PPT / Activity
11			1	Legal issues of PA	PPT / Lecture
			1	Legal issues of PA	PPT / Lecture
			1	Mentoring & coaching	PPT / Lecture
			1	Points of siff (M&C)	PPT / Lecture
12			1	Counselling	PPT / Lecture
			1	Monitoring of management development	PPT / Lecture
			1	Guidelines of appraising employee	PPT / Lecture
			1	Bench marking	Lecture & Case
			1	Six sigma	Lecture & Case
	LEARNING AND DEVELOPMENT				
13			1	Training, training objectives & need of training development	Lecture & Case
			1	Importance of training & development	Lecture & Case
14			1	Systematic approach to T & D	Lecture & Case
			1	Evaluation of Training & Dev. Process	Lecture & Case
			1	Administration of training	Lecture & Case
			1	Difference between training & learning	Lecture & Case
15			1	Assignment	Video / Lecture
			1	Assignment	Video / Lecture

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LESSON PLAN SUBJECT – III

SUBJECT CODE :	5.3	SUBJECT NAME :	INVESTMENT MANAGEMENT
SEMESTER :	V Sem, BBA	NUMBER OF HOURS PER WEEK :	4 HRS
CLASS STRENGTH : A 'Sec'- 87, B 'Sec' - 85		FACULTY NAME :	Mr. AJAY KRISHNA A

Week	Date		Hour/s	Topic to be covered	Pedagogy used
1			1	Introduction to IM	Lecture
			2	Nature, scope of investment	Lecture
			3	Investment avenues	Lecture
			4	Types of financial assets	Lecture
2			5	Security risk, returns	Lecture
			6	Systematic risk	Lecture
			7	Unsystematic risk	Lecture
3			8	Measurement of risk	Lecture
			9	Sources of investment	Lecture
			10	Valuation & duration	Lecture
4			11	Yield curve	Lecture
			12	Bond innovation & valuation	Lecture
			13	Securities analysis	Introduction
			14	Fundamental analysis	Lecture
5			15	Economy analysis	Lecture
			16	Industry & company analysis	Lecture
			17	Company analysis	Lecture
			18	Options, futures	PPT / Lecture
6			19	Forwards, warrants	Lecture
			20	Technical analysis	Lecture
7			21	Dow's theory	PPT / Lecture
			22	Efficient marketing hypothesis	Lecture
			23	Tax aspects	Lecture
			24	Trading procedure	Lecture
8			25	Portfolio introduction	Lecture
			26	Analysis, objectives	Lecture
			27	Portfolio theory	Lecture
			28	Markowitz model	Lecture
9			29	Sharpe's single index	Lecture
			30	Efficient fronties	Lecture
			31	CAPM model	Lecture
			32	Arbitrage pricing	Lecture
10			33	Multiple factor	Lecture
			34	Portfolio management strategy	Lecture
			35	Equity portfolio management	Lecture
			36	Derivatives	Lecture

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11			37	Hedging	Lecture
			38	Portfolio revision	Lecture
			39	Treynor's mesure	Problems
			40	Jensen's mesure	Problems
12			41	Mutual funds	Introduction
			42	Personal investments	Lecture
			43	Personal finance	Lecture
			44	Portfolio management in Banks	Lecture
13			45	Insurance company & pension funds	Lecture
			46	International investing	Lecture
			47	Emerging opportunities	Lecture
			48	Software package	

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year -2021-2022

Name of the Faculty: Dr Prathiba V Kalburgi

Course: Systems Programming

Class Strength: 79

Department: Computer Science

Course Code: BCA602T

Semester: VI

CO1 Specify in details with examples Introduction of System Programming

CO2 Specify the classification and characteristics of Assemblers, Pass 1 and Pass 2, Searching and sorting

CO3 Features of Macro Processor, Data structures, databases, Pass1 and Pass 2 macro processor

CO4 Specify the characteristics of Loaders, different loader schemes, dynamic linking and loading

CO5 Understand the details of Compilers, stages of compilers with databases

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit -1:** Introduction to system software, foundations of system software	ICT, Chalk and Talk	1
2	Day 2	Machine structure with diagram, components of system software	ICT, Chalk and Talk	1
3	Day 3	Evaluation of operating system	ICT, Chalk and Talk	1
4	Day 4	Machine structure, instruction	ICT, Chalk and Talk	1
5	Day 5	Flowchart for the instruction, memory definition	ICT, Chalk and Talk	1
6	Day 6	Registers of IBM 360 data formats. Instruction formats	ICT, Chalk and Talk	1
7	Day 7	Instruction set of IBM 360/370	ICT, Chalk and Talk	1
8	Day 8	Long way-no looping	ICT, Chalk and Talk	1
9	Day 9	Address modification using instructions as data	ICT, Chalk and Talk	1
10	Day 10	Address modification using Index registers	ICT, Chalk and Talk	1
11	Day 11	**Unit-2:** Assemblers:-Functions of assemblers	ICT, Chalk and Talk	1
12	Day 12	Defining data structure, pass 1 of an assembler	ICT, Chalk and Talk	1
13	Day 13	Pass-2 of an assembler overview	ICT, Chalk and Talk	1
14	Day 14	Databases used for pass 1 and pass 2 of an assembler	ICT, Chalk and Talk	1
15	Day 15	Different types of db's used	ICT, Chalk and Talk	1
16	Day 16	Assembly programs	ICT, Chalk and Talk	1
17	Day 17	Detailed flowchart for pass 2 of assembler	ICT, Chalk and Talk	1

18	Day 18	Program to create the tables	ICT, Chalk and Talk	1
19	Day 19	Linear search and programs	ICT, Chalk and Talk	1
20	Day 20	Sorting –Bubblesort	ICT, Chalk and Talk	1
21	Day 21	Bucket and radix sort, Shell sort	ICT, Chalk and Talk	1
22	Day 22	Address calculation sort, Comparison of sorts	ICT, Chalk and Talk	1
23	Day 23	**Unit -3**: Macros: Macro features	ICT, Chalk and Talk	1
24	Day 24	Macro instruction arguments	ICT, Chalk and Talk	1
25	Day 25	Conditional macro, macro expansion	ICT, Chalk and Talk	1
26	Day 26	Macro instructions defining macros	ICT, Chalk and Talk	1
27	Day 27	Pass 1 and pass 2 macros	ICT, Chalk and Talk	1
28	Day 28	Format of databases	ICT, Chalk and Talk	1
29	Day 29	Flowchart for pass1 macro definition	ICT, Chalk and Talk	1
30	Day 30	Flowchart for pass2 macro calls	ICT, Chalk and Talk	1
31	Day 31	Macro processor, read function with flowchart	ICT, Chalk and Talk	1
32	Day 32	Flowchart for macro-processor definition	ICT, Chalk and Talk	1
33	Day 33	Stack organization one pass macro processor	ICT, Chalk and Talk	1
34	Day 34	Macro combined with assembler.	ICT, Chalk and Talk	1
35	Day 35	**Unit- 4:** Loader: Introduction , general loading scheme	ICT, Chalk and Talk	1
36	Day 36	Compile and go loader scheme	ICT, Chalk and Talk	1
37	Day 37	Absolute loaders, subroutine linkages	ICT, Chalk and Talk	1
38	Day 38	Relocating loaders, BSS loading scheme	ICT, Chalk and Talk	1
39	Day 39	Design of absolute loader	ICT, Chalk and Talk	1
40	Day 40	Design of direct link loader	ICT, Chalk and Talk	1
41	Day 41	Specification of a problem	ICT, Chalk and Talk	1
42	Day 42	Specification of data structures	ICT, Chalk and Talk	1
43	Day 43	Format of databases	ICT, Chalk and Talk	1
44	Day 44	ESD, GEST, LESA	ICT, Chalk and Talk	1
45	Day 45	Flowchart for pass 1 and pass 2	ICT, Chalk and Talk	1
46	Day 46	**Unit -5:** Compilers: Statement of problem, resigning basic elements	ICT, Chalk and Talk	1
47	Day 47	Code generation, assembly phase	ICT, Chalk and Talk	1
48	Day 48	General model, phases of compiler	ICT, Chalk and Talk	1
49	Day 49	Lexical phase, Inter pretation phase	ICT, Chalk and Talk	1
50	Day 50	Syntatic phase, storage allocation phase	ICT, Chalk and Talk	1

51	Day 51	Code generation –optimization	ICT, Chalk and Talk	1
52	Day 52	Storage assignment	ICT, Chalk and Talk	1
53	Day 53	Assembly phase	ICT, Chalk and Talk	1
54	Day 54	Passes of compiler, Brief introduction	ICT, Chalk and Talk	1

Sign of Faculty **Sign of HOD** **Sign of Principal**

M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-2022(Even)

Name of the Faculty: R Srividya
Course: **Unix Shell Programming**
Class Streng **80**

Department: Computer Science
Course Code: BCA403
Semester: IV SEM

CO1 Deliberate the details of Introduction to Unix system architecture,Unix File System and Process Management
CO2 Write down in depth Secondary Storage Management
CO3 Identify in details with examples Shell Programming
CO4 Deliberate in details with examples Conditional Control Structures
CO5 Specify the details of Unix System Communication

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit-I:** Introduction: History, salient features	Chalk & Talk, ICT	1
2	Day 2	Unix system architecture, Unix command format,	Chalk & Talk, ICT	1
3	Day 3	Unix internal and external commands	Chalk & Talk, ICT	1
4	Day 4	Directory commands, File related commands	Chalk & Talk, ICT	1
5	Day 5	Disk related commands, general utilities	Chalk & Talk, ICT	1
6	Day 6	Unix File System: Boot inode, super and data block, in-core structure,	Chalk & Talk, ICT	1
7	Day 7	Directories, conversion of pathname to inode, inode to a new file,	Chalk & Talk, ICT	1
8	Day 8	Disk blocks allocation	Chalk & Talk, ICT	1
9	Day 9	Process Management: Process state and data structures of a Process, Differences between user and Kernel	Chalk & Talk, ICT	1
10	Day 10	context of a Process, background processes, Process scheduling commands	Chalk & Talk, ICT	1
11	Day 11	Process terminating and examining commands	Chalk & Talk, ICT	1
12	Day 12	**Unit-II:** Secondary Storage Management: Formatting	Chalk & Talk, ICT	1
13	Day 13	making file system, checking disk space	Chalk & Talk, ICT	1
14	Day 14	mountable file system,	Chalk & Talk, ICT	1
15	Day 15	disk partitioning, file compression	Chalk & Talk, ICT	1

16	Day 16	Special Tools and Utilities: Filters,	Chalk & Talk, ICT	1
17	Day 17	Grep Command	Chalk & Talk, ICT	1
18	Day 18	Stream editor SED,	Chalk & Talk, ICT	1
19	Day 19	AWK Programming	Chalk & Talk, ICT	1
20	Day 20	Unix system calls, library functions	Chalk & Talk, ICT	1
21	Day 21	Processes, signals and Interrupts	Chalk & Talk, ICT	1
22	Day 22	Storage and compression facilities	Chalk & Talk, ICT	1
23	Day 23	**Unit-III:** Shell Programming: Vi editor, shell types	Chalk & Talk, ICT	1
24	Day 24	shell command line	Chalk & Talk, ICT	1
25	Day 25	executing a shell script	Chalk & Talk, ICT	1
26	Day 26	system and user-defined variables, expr command	Chalk & Talk, ICT	1
27	Day 27	shell screen interface, read	Chalk & Talk, ICT	1
28	Day 28	echo statement, command substitution	Chalk & Talk, ICT	1
29	Day 29	escape sequence characters, shell script arguments	Chalk & Talk, ICT	1
30	Day 30	positional parameters,	Chalk & Talk, ICT	1
31	Day 31	test command, file test	Chalk & Talk, ICT	1
32	Day 32	string test, numeric test	Chalk & Talk, ICT	1
33	Day 33	**Unit-IV:** Conditional Control Structures-if statement	Chalk & Talk, ICT	1
34	Day 34	case statement	Chalk & Talk, ICT	1
35	Day 35	Shell Programming on if and case	Chalk & Talk, ICT	1
36	Day 36	Looping Control Structure-while	Chalk & Talk, ICT	1
37	Day 37	Until, for, statements	Chalk & Talk, ICT	1
38	Day 38	Shell Programming on while, until,for	Chalk & Talk, ICT	1
39	Day 39	Jumping Control Structures – break, continue, exit	Chalk & Talk, ICT	1
40	Day 40	Shell Programs	Chalk & Talk, ICT	1
41	Day 41	**Unit-V:** Unix System Communication: Introduction, write, Read, wall commands	Chalk & Talk, ICT	1
42	Day 42	Sending and handling mails	Chalk & Talk, ICT	1
43	Day 43	System Administration: Roles of a System Administrator	Chalk & Talk, ICT	1
44	Day 44	File System Maintenance	Chalk & Talk, ICT	1
45	Day 45	Startup and Shutdown, User Management Backup and Restore	Chalk & Talk, ICT	1
46	Day 46	Domain Name System Distributed file System	Chalk & Talk, ICT	1

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-2022(Even)

Name of the Faculty: R Srividya

Department: Computer Science

Course: Computer Architecture

Course Code: CA-C6T

Class Strength: 83

Semester: II SEM

CO1 Understand the classification and characteristics of Digital logic circuits,flip flops,multiplexers, k map

CO2 Learn in details with number system, binary codes,data transfer operations

CO3 Learn the complete computer description

CO4 Understand in details with bus organization, instruction formats, addressing modes

CO5 Understand the asynchronous data transfer techniques, data transfer modes

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day1	**UNIT - I :**Number Systems: Binary, Octal, Hexa decimal numbers, base conversion	Chalk & talk , ICT	1
2	Day2	addition, subtraction of binary numbers,	Chalk & talk , ICT	1
3	Day3	one's and two's complements, positive and negative numbers	Chalk & talk , ICT	1
4	Day4	character codes ASCII, EBCDIC	Chalk & talk , ICT	1
5	Day5	Computer Arithmetic: Addition and Subtraction, Multiplication and Division algorithms	Chalk & talk , ICT	1
6	Day6	Floating-point Arithmetic Operations, Decimal arithmetic operations.	Chalk & talk , ICT	1
7	Day7	Structure of Computers: Computer types, Functional units, Basic operational concepts,	Chalk & talk , ICT	1
8	Day8	Von-Neumann Architecture, Bus Structures, Software,	Chalk & talk , ICT	1
9	Day9	Performance, Multiprocessors and Multicomputer	Chalk & talk , ICT	1
10	Day10	Digital Logic Circuits: Logic gates, Boolean algebra	Chalk & talk , ICT	1
11	Day11	Map Simplification	Chalk & talk , ICT	1
12	Day12	Map Simplification	Chalk & talk , ICT	1

13	Day13	combinational Circuits : half adder. Full adder	Chalk & talk , ICT	1
14	Day14	f l i p flops	Chalk & talk , ICT	1
15	Day15	Sequentialcircuits:Shiftregisters,Counters,	Chalk & talk , ICT	1
16	Day16	IntegratedCircuits	Chalk & talk , ICT	1
17	Day17	Encoder,Decoder.Data representation: Fixed and Floating point.	Chalk & talk , ICT	1
18	Day18	**UNIT-II:** Basic Computer Organization and Design: Instruction codes, Computer Registers,	Chalk & talk , ICT	1
19	Day19	Computer Instructions and Instruction cycle. Timing and Control	Chalk & talk , ICT	1
20	Day20	Memory-Reference Instructions,	Chalk & talk , ICT	1
21	Day21	Input-Output and interrupt.	Chalk & talk , ICT	1
22	Day22	Central processing unit: Stack organization, Instruction Formats,	Chalk & talk , ICT	1
23	Day23	Addressing Modes,	Chalk & talk , ICT	1
24	Day24	Data Transfer and Manipulation,	Chalk & talk , ICT	1
25	Day25	Complex Instruction Set Computer (CISC) Reduced Instruction Set Computer (RISC), CISC vs RISC	Chalk & talk , ICT	1
26	Day26	**UNIT-III:**Register Transfer and Micro-operations: Register Transfer Language, Register Transfer	Chalk & talk , ICT	1
27	Day27	Bus and Memory Transfers, Arithmetic Micro-Operations,	Chalk & talk , ICT	1
28	Day28	Logic Micro-Operations	Chalk & talk , ICT	1
29	Day29	Shift Micro-Operations, Arithmetic logic shift unit.	Chalk & talk , ICT	1
30	Day30	Micro-programmed Control: Control Memory, Address Sequencing	Chalk & talk , ICT	1
31	Day31	Micro-Program example, Design of Control Unit.	Chalk & talk , ICT	1
32	Day32	Input Output: I/O interface, Programmed IO, Memory Mapped IO,	Chalk & talk , ICT	1
33	Day33	Interrupt Driven IO, DMA.	Chalk & talk , ICT	1

34	Day34	Instruction level parallelism: Instruction level parallelism (ILP)-over coming data hazards, limitations of ILP	Chalk & talk , ICT	1
35	Day35	**UNIT-IV:**Memory System: Memory Hierarchy, Semiconductor Memories	Chalk & talk , ICT	1
36	Day36	RAM(Random Access Memory), Read Only Memory (ROM), Types of ROM	Chalk & talk , ICT	1
37	Day37	Cache Memory, Performance considerations	Chalk & talk , ICT	1
38	Day38	Virtual memory, Paging,	Chalk & talk , ICT	1
39	Day39	Secondary Storage,	Chalk & talk , ICT	1
40	Day40	RAID	Chalk & talk , ICT	1
41	Day41	Multiprocessors And Thread level Parallelism: Characteristics of multiprocessors,	Chalk & talk , ICT	1
42	Day42	Multi-Threaded Architecture	Chalk & talk , ICT	1
43	Day43	Distributed Memory MIMD Architectures	Chalk & talk , ICT	1
44	Day44	Interconnection structures	Chalk & talk , ICT	1

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19	Day 19	Dead lock prevention,	Chalk and Talk, ICT	1
20	Day 20	avoidance and detection, Recovery from dead lock.	Chalk and Talk, ICT	1
21	Day 21	**Unit-III Memory management:** Functions, single, contiguous	Chalk and Talk, ICT	1
22	Day 22	Partitioned memory management, multiple reloadable.	Chalk and Talk, ICT	1
23	Day 23	Paging, segmentation.	Chalk and Talk, ICT	1
24	Day 24	Demand paging virtual memory management.	Chalk and Talk, ICT	1
25	Day 25	File Management: Concept, access methods, directory structures.	Chalk and Talk, ICT	1
26	Day 26	Allocation methods, Free space management.	Chalk and Talk, ICT	1
27	Day 27	Secondary storage structure.	Chalk and Talk, ICT	1
28	Day 28	Disk Management: Disk Structure and Scheduling methods.	Chalk and Talk, ICT	1
29	Day 29	Swap-Space management.	Chalk and Talk, ICT	1

Jyothi .V

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021 - 2022 EVEN SEM

Name of the Faculty: Shilpa Nayak

Course: Java Programing

Class Strength: 83

Department: Computer Science

Course Code: CA-C7T

Semester: 2

CO1	Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods, Write down in depth Classes, Arrays, Strings.
CO2	Understanding in detail the concept of Inheritance and polymorphism
CO3	Identify the classification and characteristics of Graphics Programming and Applet Programming
CO4	Understand the classification and characteristics of Multithreading and Managing Exceptions

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit 1:** Introduction to JAVA: JAVA Evolution: Java History, Java Features, How Java Differs from C and C++,	Chalk and talk	1
2	Day 2	Constants, Variables, and Data Types: Introduction, Constants, Variables, Operators	Chalk and talk	1
3	Day 3	Control Structures including selection making with if Statement,	Chalk and talk	1
4	Day 4	Simple if Statement, The if…..else Statement, Nesting of if……Else Statements, The else if Ladder,	Chalk and talk	1
5	Day 5	Programming Examples	Chalk and talk	1
6	Day 6	Looping: Introduction. The while Statement, The do Statement,	Chalk and talk	1
7	Day 7	Programming Examples	Chalk and talk	1
8	Day 8	The for Statement, Labeled Loops.	Chalk and talk	1
9	Day 9	Programming Examples	Chalk and talk	1

10	Day 10	Java methods	Chalk and talk	1
11	Day 11	Overloading	Chalk and talk	1
12	Day 12	Math class	Chalk and talk	1
13	Day 13	Arrays in Java	Chalk and talk	1
14	Day 14	Programming Examples	Chalk and talk	1
15	Day 15	Objects and Classes: Basics of objects and classes in Java	Chalk and talk	1
16	Day 16	Constructors	Chalk and talk	1
17	Day 17	Finalizer,	Chalk and talk	1
18	Day 18	Visibility modifiers	Chalk and talk	1
19	Day 19	Methods and objects, Inbuilt classes like string, character, String buffer, file	Chalk and talk	1
20	Day 20	this reference	Chalk and talk	1
21	Day 21	Programming examples	Chalk and talk	1
22	Day 22	**UNIT 2**: Inheritanceand Polymorphism: Inheritance in Java, Super and sub class	Chalk and talk	1
23	Day 23	Class Overriding Methods,	Chalk and talk	1
24	Day 24	Object class,	Chalk and talk	1
25	Day 25	Polymorphism,	Chalk and talk	1
26	Day 26	Dynamic Binding,	Chalk and talk	1
27	Day 27	Generic programming	Chalk and talk	1
28	Day 28	Casting objects,	Chalk and talk	1
29	Day 29	Instance of operator	Chalk and talk	1
30	Day 30	Abstract Methods and Classes,	Chalk and talk	1
31	Day 31	Interface in Java	Chalk and talk	1
32	Day 32	Package in java, UTIL package	Chalk and talk	1
33	Day 33	**UNIT 3:** Event and GUI programming: Event handling in java, Event types, Mouse and key events,	Chalk and talk	1
34	Day 34	GUI Basics, Panels, Frames	Chalk and talk	1
35	Day 35	Layout Managers: Flow Layout, Border Layout, Grid Layout	Chalk and talk	1
36	Day 36	GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes,	Chalk and talk	1

37	Day 37	Lists, Scroll Bars, Sliders,Windows, Menus, Dialog Box,	Chalk and talk	1
38	Day 38	Applet and its life cycle,	Chalk and talk	1
39	Day 39	Introduction to swing,	Chalk and talk	1
40	Day 40	Exceptional handling mechanism	Chalk and talk	1
41	Day 41	I/O programming: Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files.	Chalk and talk	1
42	Day 42	**UNIT 4 :** Multithreading in java: Introduction,	Chalk and talk	1
43	Day 43	Life Cycle of a thread and methods	Chalk and talk	1
44	Day 44	Runnable interface	Chalk and talk	1
45	Day 45	Thread synchronization,	Chalk and talk	1
46	Day 46	Exception handling with try-catch-finally,	Chalk and talk	1
47	Day 47	Collections in java	Chalk and talk	1
48	Day 48	Introduction to JavaBeans and Network Programming	Chalk and talk	1

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021 - 2022 EVEN SEM

Name of the Faculty: Shilpa Nayak
Course: CAIT
Class Strength: 78

Department: B.SC 'B'
Course Code:
Semester: 6

CO1	Understand the practical concepts of database, MS Word, MS Excel, MS PowerPoint, and MSAccess.
CO2	To understand the role information technology and information systems in business. Analyze and evaluate the cyber security needs of an organization
CO3	Be aware of the ethical, social, and security issues of information systems.

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Unit I: Database definition, objective of Database, DBMS, features of DBMS, Data models, DBMS Software	ICT, Chalk and talk	1
2	Day 2	creating, editing, monitoring, searching and sorting databases, creating and printing formatted reports,	ICT, Chalk and talk	1
3	Day 3	designing custom screen display, multiple data files, executing queries	ICT, Chalk and talk	1
4	Day 4	Introduction to MSWord, Advantage and features of word processor. Operations and applications of word processor, MS word menus, advanced MS-word function	ICT, Chalk and talk	1
5	Day 5	Introduction to MS-Excel, views of MS-Excel, features and functions of MS-Excel	ICT, Chalk and talk	1
6	Day 6	Introduction to MS-Access, features of MS-Access. Functions and features of presentation package (MS-PowerPoint), views of MS-Power point.	ICT, Chalk and talk	1
7	Day 7	Introduction to Internet, Internet services, use of Browsers, HTML and E-mail functionality.Introduction to DTP Software Package, flash, Dream viewer, Adobe-pdf.	ICT, Chalk and talk	1

8	Day 8	Unit II: Introduction to information system- MIS, GIS, TPS, DSS, expert systems,	ICT, Chalk and talk	1
9	Day 9	Accounting Information system, ERP and cloud computing.	ICT, Chalk and talk	1
10	Day 10	Cybercrimes and cyber terrorism- Cybercrimes and the categories of crime such as Cyber frauds	ICT, Chalk and talk	1
11	Day 11	Cyber thefts, Cyber stacking, Cyber Terrorism and Hacking	ICT, Chalk and talk	1
12	Day 12	IT-Governance Risk and compliance — CMM (Capability Maturity Model)	ICT, Chalk and talk	1
13	Day 13	Control objectives for information and related technology (COBIT).	ICT, Chalk and talk	1
14	Day 14	Unit Ill Electronic contracting, digital signature, E-Commerce, threats in e-commerce	ICT, Chalk and talk	1
15	Day 15	E-Commerce, threats in e-commerce	ICT, Chalk and talk	1
16	Day 16	Encryption overview, Elements of an encryption system, secret key encryption, public key encryption,	ICT, Chalk and talk	1
17	Day 17	Smartcards and its applications	ICT, Chalk and talk	1
18	Day 18	E-Banking, types of Electronic fund transfer, Risk of electronic payment system.	ICT, Chalk and talk	1
19	Day 19	Salient features of IT Act — 2000- Definitions, Electronic record and digital signature authentication,	ICT, Chalk and talk	1
20	Day 20	Various authorities under IT Act and their powers, Penalties, Offences.	ICT, Chalk and talk	1

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021 - 2022 EVEN SEM

Name of the Faculty: Savitri K

Department: Computer Science

Course: CAIT

Course Code:

Class Strength: 71

Semester: 6

CO1	Understand the practical concepts of database, MS Word, MS Excel, MS PowerPoint, and MSAccess.
CO2	To understand the role information technology and information systems in business. Analyze and evaluate the cyber security
CO3	Be aware of the ethical, social, and security issues of information systems.

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Unit I: Database definition, objective of Database, DBMS, features of DBMS, Data models, DBMS Software	Chalk and talk, PPT	1
2	Day 2	creating, editing, monitoring, searching and sorting databases, creating and printing formatted reports,	Chalk and talk, PPT	2
3	Day 3	designing custom screen display, multiple data files, executing queries	Chalk and talk, PPT	3
4	Day 4	Introduction to MSWord, Advantage and features of word processor. Operations and applications of word processor, MS word menus, advanced MS-word function	Chalk and talk, PPT	4
5	Day 5	Introduction to MS-Excel, views of MS-Excel, features and functions of MS-Excel	Chalk and talk, PPT	5
6	Day 6	Introduction to MS-Access, features of MS-Access.	Chalk and talk, PPT	6
7	Day 7	Functions and features of presentation package (MS-PowerPoint), views of MS-Power point.	Chalk and talk, PPT	7
8	Day 8	Introduction to Internet, Internet services, use of Browsers, HTML and E-mail functionality.	Chalk and talk, PPT	8

9	Day 9	Introduction to DTP Software Package, flash, Dream viewer, Adobe pdf.	Chalk and talk, PPT	9
10	Day 10	QUIZ	Chalk and talk, PPT	10
11	Day 11	Unit II: Introduction to information system- MIS, GIS, TPS, DSS, expert systems,	Chalk and talk, PPT	11
12	Day 12	Accounting Information system, ERP and cloud computing.	Chalk and talk, PPT	12
13	Day 13	Cybercrimes and cyber terrorism- Cybercrimes and the categories of crime such as Cyber frauds	Chalk and talk, PPT	13
14	Day 14	Cyber thefts, Cyber stacking, Cyber Terrorism and Hacking	Chalk and talk, PPT	14
15	Day 15	IT-Governance Risk and compliance — CMM (Capability Maturity Model)	Chalk and talk, PPT	15
16	Day 16	Control objectives for information and related technology (COBIT).	Chalk and talk, PPT	16
17	Day 17	QUIZ	Chalk and talk, PPT	17
18	Day 18	Unit III Electronic contracting, digital signature, E-Commerce, threats in e-commerce	Chalk and talk, PPT	18
19	Day 19	E-Commerce, threats in e-commerce	Chalk and talk, PPT	19
20	Day 20	Encryption overview, Elements of an encryption system, secret key encryption, public key encryption,	Chalk and talk, PPT	20
21	Day 21	Smartcards and its applications	Chalk and talk, PPT	21
22	Day 22	E-Banking, types of Electronic fund transfer, Risk of electronic payment system.	Chalk and talk, PPT	22
23	Day 23	Salient features of IT Act — 2000- Definitions, Electronic record and digital signature authentication,	Chalk and talk, PPT	23
24	Day 24	Various authorities under IT Act and their powers, Penalties, Offences.	Chalk and talk, PPT	24
25	Day 25	QUIZ	Chalk and talk, PPT	25

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty:Savitri K

Course: SE

Class Strength: 78

Department: Computer Science

Course Code: BCA 405T

Semester:4

CO1 Identify in details with application, if applicable, Introduction to software products & process

CO2 Learn the characteristics of Software prototyping:prototyping in software process

CO3 Identify the classification and characteristics of Object oriented and function oriented design

CO4 Deliberate the characteristics of Software reliability and reusability

CO5 Learn the classification and characteristics of Software verification and validation:testing process

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction to software products & process.	Chalk and talk	1
2	Day 2	Process models: Waterfall model,evolutionary model development	Chalk and talk	2
3	Day 3	Bohemia's spiral model.	Chalk and talk	3
4	Day 4	Overview of risk management, process visibiliy	Chalk and talk	4
5	Day 5	Professional responsibility	Chalk and talk	5
6	Day 6	System and their environment,system procurement,system engineering process	Chalk and talk	6
7	Day 7	system architecture modeling,human factors,system reliabilty engineering	Chalk and talk	7
8	Day 8	Requirement & specificaiton: The requirement engineering process	Chalk and talk	8
9	Day 9	The software requirement document, validation of evolution of requirement	Chalk and talk	9
10	Day 10	View point oriented and method based analysis, system context	Chalk and talk	10
11	Day 11	Social 7 organization factor data flow, semantic, objects,models	Chalk and talk	11
12	Day 12	Requirement specification, non functional requirement	Chalk and talk	12
13	Day 13	Software prototyping: prototyping in software process	Chalk and talk	13
14	Day 14	Prototyping techniques	Chalk and talk	14
15	Day 15	User interface prototype	Chalk and talk	15
16	Day 16	software design	Chalk and talk	16
17	Day 17	Design strategies	Chalk and talk	17
18	Day 18	Design quality	Chalk and talk	18
19	Day 19	System structuring control models	Chalk and talk	19
20	Day 20	System structuring control models	Chalk and talk	20

21	Day 21	System structuring control models	Chalk and talk	21
22	Day 22	Modular decomposition	Chalk and talk	22
23	Day 23	Domain specific architecture	Chalk and talk	23
24	Day 24	Domain specific architecture	Chalk and talk	24
25	Day 25	Object oriented and function oriented design	Chalk and talk	25
26	Day 26	Objects,object classes and inheritance	Chalk and talk	26
27	Day 27	Object identification, object oriented design example	Chalk and talk	27
28	Day 28	Concurrent objects	Chalk and talk	28
29	Day 29	Data flow design	Chalk and talk	29
30	Day 30	Structural decomposition	Chalk and talk	30
31	Day 31	Detailed design	Chalk and talk	31
32	Day 32	Comparison of design strategies	Chalk and talk	32
33	Day 33	user interface design: design principles	Chalk and talk	33
34	Day 34	User system interaction	Chalk and talk	34
35	Day 35	Information presentation user guide	Chalk and talk	35
36	Day 36	Interface evaluation	Chalk and talk	36
37	Day 37	software relaiability and reusability	Chalk and talk	37
38	Day 38	Software reliability metrics	Chalk and talk	38
39	Day 39	Software reliability specifications	Chalk and talk	39
40	Day 40	Statistical testing	Chalk and talk	40
41	Day 41	Reliability growth modeling	Chalk and talk	41
42	Day 42	Fault avoidance and tolerance	Chalk and talk	42
43	Day 43	Exception handling	Chalk and talk	43
44	Day 44	Defensive programming	Chalk and talk	44
45	Day 45	Software development with reuse	Chalk and talk	45
46	Day 46	Software development for reuse	Chalk and talk	46
47	Day 47	Generator based reuse	Chalk and talk	47
48	Day 48	application system probability	Chalk and talk	48
49	Day 49	Software verification and validation:testing process	Chalk and talk	49
50	Day 50	Test planning and strategies	Chalk and talk	50
51	Day 51	black box testing	Chalk and talk	51
52	Day 52	Structural testing	Chalk and talk	52
53	Day 53	Interface testing, Program inspections	Chalk and talk	53
54	Day 54	Mathematically based verification, Static analysis tools	Chalk and talk	54
55	Day 55	Clean room software development, management issues:Project management	Chalk and talk	55
56	Day 56	Quality management, software cost estimation, software maintenance	Chalk and talk	56

M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Savitri K
Course: Data Structures
Class Strength: 39

Department: Computer Science
Course Code: CS-C3T
Semester: 2

CO1 Learn Data Structures, data Structures operations
CO2 Learn Linked list: Definition, Representation
CO3 Learn Binary Trees Graphs
CO4 Learn Searching Sorting

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit –I** Introduction and Overview: Definition, Elementary data organization	Chalk and talk, ICT	1
2	Day 2	Data Structures, data Structures operations	Chalk and talk, ICT	2
3	Day 3	Abstract data types	Chalk and talk, ICT	3
4	Day 4	algorithms complexity, time-space trade off.	Chalk and talk, ICT	4
5	Day 5	Preliminaries: Mathematical notations and functions	Chalk and talk, ICT	5
6	Day 6	Algorithmic notations, control structures	Chalk and talk, ICT	6
7	Day 7	Complexity of algorithms	Chalk and talk, ICT	7
8	Day 8	asymptotic notations for complexity of algorithms	Chalk and talk, ICT	8
9	Day 9	Arrays: Definition, Linear arrays, arrays as ADT	Chalk and talk, ICT	9
10	Day 10	Representation of Linear Arrays in Memory	Chalk and talk, ICT	10
11	Day 11	Traversing Linear arrays, Inserting and deleting		11
12	Day 12	Multi-dimensional arrays, Matrices and Sparse matrices	Chalk and talk, ICT	12

13	Day 13	**UNIT-II** Linked list: Definition, Representation of Singly Linked List in memory	Chalk and talk, ICT	13
14	Day 14	Traversing a Singly linked list, searching in a Singly linked list	Chalk and talk, ICT	14
15	Day 15	Memory allocation, Garbage collection, Insertion into a singly linked list	Chalk and talk, ICT	15
16	Day 16	singly linked list; Doubly linked list, Header linked list, Circular linked list. Stacks	Chalk and talk, ICT	16
17	Day 17	Definition, Array representation of stacks	Chalk and talk, ICT	17
18	Day 18	Linked representation of stacks, Stack as ADT	Chalk and talk, ICT	18
19	Day 19	Arithmetic Expressions: Polish Notation, Conversion of infix expression to postfix expression		19
20	Day 20	Evaluation of Post fix expression	Chalk and talk, ICT	20
21	Day 21	Application of Stacks, Recursion, Towers of Hanoi, Implementation of recursive procedures by stack.	Chalk and talk, ICT	21
22	Day 22	Queues: Definition, Array representation of queue, Linked list representation of queues	Chalk and talk, ICT	22
23	Day 23	Types of queue: Simple queue, Circular queue, Double-ended queue		23
24	Day 24	Priority queue, Operations on Queues, Applications of queues.	Chalk and talk, ICT	24
25	Day 25	**UNIT-III** Binary Trees: Definitions	Chalk and talk, ICT	25
26	Day 26	Tree Search, Traversal of Binary Tree	Chalk and talk, ICT	26
27	Day 27	Tree Sort, Building a Binary Search Tree	Chalk and talk, ICT	27
28	Day 28	Height Balance: AVL Trees, Contiguous Representation of Binary Trees	Chalk and talk, ICT	28

29	Day 29	Heaps, Lexicographic Search	Chalk and talk, ICT	29
30	Day 30	Trees: Tries, External	Chalk and talk, ICT	30
31	Day 31	**UNIT-IV** Searching: B-Trees, Applications of Trees	Chalk and talk, ICT	31
32	Day 32	Graphs: Mathematical Back ground	Chalk and talk, ICT	32
33	Day 33	Computer Representation, Graph Traversal	Chalk and talk, ICT	33
34	Day 34	Topological Sorting	Chalk and talk, ICT	34
35	Day 35	Searching: Introduction and Notation	Chalk and talk, ICT	35
36	Day 36	Sequential Search, Binary Search	Chalk and talk, ICT	36
37	Day 37	Comparison of Methods.	Chalk and talk, ICT	37
38	Day 38	Sorting: Introduction and Notation, Insertion Sort	Chalk and talk, ICT	38
39	Day 39	Selection Sort, Shell Sort, Divide and Conquer	Chalk and talk, ICT	39
40	Day 40	Merge sort for Linked List, Quick sort for Contiguous List	Chalk and talk, ICT	40
41	Day 41	Hashing: Sparse Tables, Choosing a Hash function,	Chalk and talk, ICT	41
42	Day 42	Collision Resolution with Open Addressing	Chalk and talk, ICT	42
43	Day 43	Collision Resolution by Chaining	Chalk and talk, ICT	43

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021 - 2022 EVEN SEM

Name of the Faculty: R Srividya

Department: Computer Science

Course: CAIT

Course Code:

Class Strength: 80

Semester: 6

CO1	Understand the practical concepts of database, MS Word, MS Excel, MS PowerPoint, and MSAccess.
CO2	To understand the role information technology and information systems in business. Analyze and evaluate the cyber security needs of an organization
CO3	Be aware of the ethical, social, and security issues of information systems.

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Unit I: Database definition, objective of Database, DBMS, features of DBMS, Data models, DBMS Software	Chalk and talk, PPT	1
2	Day 2	creating, editing, monitoring, searching and sorting databases, creating and printing formatted reports,	Chalk and talk, PPT	2
3	Day 3	designing custom screen display, multiple data files, executing queries	Chalk and talk, PPT	3
4	Day 4	Introduction to MSWord, Advantage and features of word processor. Operations and applications of word processor, MS word menus, advanced MS-word function	Chalk and talk, PPT	4
5	Day 5	Introduction to MS-Excel, views of MS-Excel, features and functions of MS-Excel	Chalk and talk, PPT	5
6	Day 6	Introduction to MS-Access, features of MS-Access. Functions and features of presentation package (MS-PowerPoint), views of MS-Power point.	Chalk and talk, PPT	6
7	Day 7	Introduction to Internet, Internet services, use of Browsers, HTML and E-mail functionality.Introduction to DTP Software Package, flash, Dream viewer, Adobe-pdf.	Chalk and talk, PPT	7

8	Day 8	Unit II: Introduction to information system- MIS, GIS, TPS, DSS, expert systems,	Chalk and talk, PPT	8
9	Day 9	Accounting Information system, ERP and cloud computing.	Chalk and talk, PPT	9
10	Day 10	Cybercrimes and cyber terrorism- Cybercrimes and the categories of crime such as Cyber frauds	Chalk and talk, PPT	10
11	Day 11	Cyber thefts, Cyber stacking, Cyber Terrorism and Hacking	Chalk and talk, PPT	11
12	Day 12	IT-Governance Risk and compliance — CMM (Capability Maturity Model)	Chalk and talk, PPT	12
13	Day 13	Control objectives for information and related technology (COBIT).	Chalk and talk, PPT	13
14	Day 14	Unit III Electronic contracting, digital signature, E-Commerce, threats in e-commerce	Chalk and talk, PPT	14
15	Day 15	E-Commerce, threats in e-commerce	Chalk and talk, PPT	15
16	Day 16	Encryption overview, Elements of an encryption system, secret key encryption, public key encryption,	Chalk and talk, PPT	16
17	Day 17	Smartcards and its applications	Chalk and talk, PPT	17
18	Day 18	E-Banking, types of Electronic fund transfer, Risk of electronic payment system.	Chalk and talk, PPT	18
19	Day 19	Salient features of IT Act — 2000- Definitions, Electronic record and digital signature authentication,	Chalk and talk, PPT	19
20	Day 20	Various authorities under IT Act and their powers, Penalties, Offences.	Chalk and talk, PPT	20

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Lakshmipathi V

Course: OS

Class Strength: 40

Department: Computer Science

Course Code: CS4T

Semester: 4

CO1	To understand the services provided by and the design of an operating system.
CO2	To understand what a process is and how processes are synchronized and scheduled.
CO3	To understand different approaches to memory management. To understand the structure and organization of the file system

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit-I : Introduction:** Definition, Types operating Systems.	Chalk and Talk, ICT	1
2	Day 2	Functions of operating System, Services.	Chalk and Talk, ICT	1
3	Day 3	System components System call,	Chalk and Talk, ICT	1
4	Day 4	**Process Management:** Process Concept	Chalk and Talk, ICT	1
5	Day 5	Process Scheduling,	Chalk and Talk, ICT	1
6	Day 6	Inter process Communication.	Chalk and Talk, ICT	1
7	Day 7	CPU Scheduling Criteria.	Chalk and Talk, ICT	1
8	Day 8	Scheduling algorithm.	Chalk and Talk, ICT	1
9	Day 9	Multiple Processor Scheduling.	Chalk and Talk, ICT	1
10	Day 10	Real time scheduling.	Chalk and Talk, ICT	1
11	Day 11	Algorithm Evaluation	Chalk and Talk, ICT	1
12	Day 12	**Unit-II : Process Synchronization and Deadlocks:** The Critical Section problem.	Chalk and Talk, ICT	1
13	Day 13	Synchronization hardware.	Chalk and Talk, ICT	1
14	Day 14	Semaphores.	Chalk and Talk, ICT	1
15	Day 15	Classical problems of synchronization.	Chalk and Talk, ICT	1
16	Day 16	Critical regions, Monitors,	Chalk and Talk, ICT	1
17	Day 17	**Dead lock:** System model.	Chalk and Talk, ICT	1
18	Day 18	Characterisation of deadlock	Chalk and Talk, ICT	1

M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year 2021-2022 EVEN

Name of the Faculty: Suma C
Course: VB.NET
Class Stren 78

Department: Computer Science
Course Code: BCA403T
Semester: IV BCA

CO1	will learn .net framework and its features
CO2	Will learn to create applications in vb.net
CO3	Will understand basic concepts of programming using VB.Net
CO4	Will learn how to create web application using ASP.Net
CO5	Will learn to create database using SQL

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction to .net framework -Features,	Chalk and Talk and ICT	1
2	Day 2	Common Language Runtime (CLR), Framework Class Library(FCL). Common Language Specification (CLS)	Chalk and Talk and ICT	2
3	Day 3	Common Type System (CTS), Intermediate Language (IL) and Just-In-Time (JIT) Compilation	Chalk and Talk and ICT	3
4	Day 4	Visual Studio.Net – IDE, Languages Supported, Components.	Chalk and Talk and ICT	4
5	Day 5	VB.Net Features, IDE- Menu System	Chalk and Talk and ICT	5
6	Day 6	Toolbars, Code Designer, Solution Explorer	Chalk and Talk and ICT	6
7	Day 7	Object Browser, Toolbox, Class View Window	Chalk and Talk and ICT	7
8	Day 8	Properties Window, Server Explorer,	Chalk and Talk and ICT	8
9	Day 9	Task List, Output Window, Command Window.	Chalk and Talk and ICT	9
10	Day 10	Creating Applications with Visual Basic.NET	Chalk and Talk and ICT	10
11	Day 11	Variables, Constants, Making Decisions	Chalk and Talk and ICT	11
12	Day 12	Working with Strings	Chalk and Talk and ICT	12
13	Day 13	Sub Procedures and Functions	Chalk and Talk and ICT	13
14	Day 14	Multiple Forms, Standard Modules, and Menus	Chalk and Talk and ICT	14
15	Day 15	Arrays, Timers	Chalk and Talk and ICT	15
16	Day 16	Form Controls, File Handling, Exception Handling	Chalk and Talk and ICT	16
17	Day 17	Working with Databases	Chalk and Talk and ICT	17
18	Day 18	Advanced Database Programming using ADO.net, Classes	Chalk and Talk and ICT	18

19	Day 19	Generics, Collections, Inheritance, Custom Controls	Chalk and Talk and ICT	19
20	Day 20	Packaging & deployment	Chalk and Talk and ICT	20
21	Day 21	Using Crystal Reports.	Chalk and Talk and ICT	21
22	Day 22	Data Types,Keywords, Declaring Variables and Constants	Chalk and Talk and ICT	22
23	Day 23	Operators, Understanding Scope and accessibility of variables	Chalk and Talk and ICT	23
24	Day 24	Conditional Statements- If- Then	Chalk and Talk and ICT	24
25	Day 25	If-Then-Else, Nested If, Select Case	Chalk and Talk and ICT	25
26	Day 26	Looping Statement- Do loop, For Loop	Chalk and Talk and ICT	26
27	Day 27	For Each-Next Loop, While Loop	Chalk and Talk and ICT	27
28	Day 28	Arrays-Static and Dynamic	Chalk and Talk and ICT	28
29	Day 29	Creating MDI Parent and Child	Chalk and Talk and ICT	29
30	Day 30	Functions and Procedures- Built-In Functions	Chalk and Talk and ICT	30
31	Day 31	Mathematical and string functions	Chalk and Talk and ICT	31
32	Day 32	Building a Web Application, Examples Using Standard Controls, Using HTML Controls	Chalk and Talk and ICT	32
33	Day 33	Validating Form Input Controls using Validation Controls	Chalk and Talk and ICT	33
34	Day 34	Understanding Applications and State	Chalk and Talk and ICT	34
35	Day 35	Applying Styles, Themes, and Skins, Creating a Layout Using Master Pages	Chalk and Talk and ICT	35
36	Day 36	Binding to Databases using Controls, Data Management with ADO.net	Chalk and Talk and ICT	36
37	Day 37	Creating a Site Navigation Hierarchy	Chalk and Talk and ICT	37
38	Day 38	Navigation Controls , Membership and Role Management	Chalk and Talk and ICT	38
39	Day 39	Login Controls, Securing Applications	Chalk and Talk and ICT	39
40	Day 40	Caching For Performance, Working with XML	Chalk and Talk and ICT	40
41	Day 41	Using Crystal Reports in Web Forms	Chalk and Talk and ICT	41
42	Day 42	Introduction, Using SQL to work with database	Chalk and Talk and ICT	42
43	Day 43	retrieving and manipulating data with SQL	Chalk and Talk and ICT	43
44	Day 44	working with ADO.NET	Chalk and Talk and ICT	44
45	Day 45	ADO.NET architecture	Chalk and Talk and ICT	45
46	Day 46	ASP.NET data control, data source control	Chalk and Talk and ICT	46
47	Day 47	deploying the web site,Crystal reports	Chalk and Talk and ICT	47
48	Day 48	LINQ: Operators, implementations	Chalk and Talk and ICT	48
49	Day 49	LINQ to objects, XML, ADO.NET, Query Syntax.	Chalk and Talk and ICT	49
50	Day 50	Stored Procedures	Chalk and Talk and ICT	50

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year 2021-2022 EVEN

Department:Computer Science

Name of the Faculty: Suma C

Course Code:CS6T1

Course: Web Programming

Semester: VI BSC

Class Strength: 37

CO1	will Learn fundamentals of web
CO2	Overview of java script
CO3	Implement HTML USING Java script
CO4	Create CSS Style sheets

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Fundamentals of Web: Internet, WWW, Web Browsers, and Web Servers	Chalk and Talk and ICT	1
2	Day 2	URLs, MIME, HTTP, Security	Chalk and Talk and ICT	2
3	Day 3	The Web Programmers Toolbox	Chalk and Talk and ICT	3
4	Day 4	XHTML: Origins and evolution of HTML and XHTML	Chalk and Talk and ICT	4
5	Day 5	Basic syntax, Standard XHTML document structure	Chalk and Talk and ICT	5
6	Day 6	Basic text markup, Images	Chalk and Talk and ICT	6
7	Day 7	Hypertext Links, Lists	Chalk and Talk and ICT	7
8	Day 8	Tables	Chalk and Talk and ICT	8
9	Day 9	Forms, Frames	Chalk and Talk and ICT	9
10	Day 10	Syntactic differences between HTML and XHTML.	Chalk and Talk and ICT	10
11	Day 11	Overview of JavaScript;	Chalk and Talk and ICT	11
12	Day 12	Object orientation and JavaScript	Chalk and Talk and ICT	12
13	Day 13	General syntactic characteristics	Chalk and Talk and ICT	13
14	Day 14	Primitives, Operations	Chalk and Talk and ICT	14
15	Day 15	xpressions	Chalk and Talk and ICT	15
16	Day 16	Screen output and keyboard input	Chalk and Talk and ICT	16
17	Day 17	Control statements;	Chalk and Talk and ICT	17
18	Day 18	Object creation and Modification,Arrays	Chalk and Talk and ICT	18
19	Day 19	Functions; Constructor	Chalk and Talk and ICT	19
20	Day 20	Pattern matching using expressions	Chalk and Talk and ICT	20
21	Day 21	Errors in scripts; Examples	Chalk and Talk and ICT	21
22	Day 22	Java Script and HTML Documents,	Chalk and Talk and ICT	22
23	Day 23	Dynamic Documents with JavaScript	Chalk and Talk and ICT	23

24	Day 24	The JavaScript execution environment	Chalk and Talk and ICT	24
25	Day 25	The Document Object Model; Element access in JavaScript	Chalk and Talk and ICT	25
26	Day 26	Element access in JavaScript	Chalk and Talk and ICT	26
27	Day 27	Events and event handling; Handling events from the Body elements	Chalk and Talk and ICT	27
28	Day 28	Button elements, Text box and Password elements	Chalk and Talk and ICT	28
29	Day 29	The DOM 2 event model; The navigator object	Chalk and Talk and ICT	29
30	Day 30	DOM tree traversal and modification.	Chalk and Talk and ICT	30
31	Day 31	Introduction to dynamic documents; Positioning elements	Chalk and Talk and ICT	31
32	Day 32	Moving elements; Element visibility; Changing colors and fonts	Chalk and Talk and ICT	32
33	Day 33	Dynamic content; Stacking elements; Locating the mouse cursor	Chalk and Talk and ICT	33
34	Day 34	Reacting to a mouse click; Slow movement of elements; Dragging and dropping elements.	Chalk and Talk and ICT	34
35	Day 35	Introduction, Levels of style sheets	Chalk and Talk and ICT	35
36	Day 36	Style specification formats, Selector forms	Chalk and Talk and ICT	36
37	Day 37	Property value forms, Font properties, List properties	Chalk and Talk and ICT	37
38	Day 38	Color, Alignment of text, The Box model	Chalk and Talk and ICT	38
39	Day 39	Background images, The and tags Conflict resolution	Chalk and Talk and ICT	39
40	Day 40	XML: Introduction; Syntax; Document structure	Chalk and Talk and ICT	40
41	Day 41	Document Type definitions; Namespaces	Chalk and Talk and ICT	41
42	Day 42	XML schemas; Displaying raw XML documents	Chalk and Talk and ICT	42
43	Day 43	Displaying XML documents with CSS	Chalk and Talk and ICT	43
44	Day 44	XSLT style sheets; XML Processors; Web services	Chalk and Talk and ICT	44

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16	Day 16	Encryption overview, Elements of an encryption system, secret key encryption, public key encryption,	Chalk and talk	16
17	Day 17	Smartcards and its applications	Chalk and talk	17
18	Day 18	E-Banking, types of Electronic fund transfer, Risk of electronic payment system.	Chalk and talk	18
19	Day 19	Salient features of IT Act — 2000- Definitions, Electronic record and digital signature authentication,	Chalk and talk	19
20	Day 20	Various authorities under IT Act and their powers, Penalties, Offences.	Chalk and talk	20

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Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Dr Prathiba V K
Course: DBMS
Class Strength: 38

Department:
Course Code: CS3T
Semester: 3 BSc

CO1 Learn in detail applications, introduction to DBMS, advantages and characteristics
CO2 Learn about E-R data models, architecture, data interfaces
CO3 Specify in detail with examples functional dependecies and normalization for relational DB
CO4 Understand in detail with application, if applicable relational DB language
CO5 Learn about the basics of PL/SQL , triggers and functions

Sl.No	Date of Completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction to Data, database, dbms, Characteristics of database approach	Chalk and talk ,PPT	1
2	Day 2	Database users, advantages of DBMS, database system concepts and architecture	Chalk and talk ,PPT	2
3	Day 3	Data models , schemas and instances,	Chalk and talk ,PPT	3
4	Day 4	Dbms architecture and data independence	Chalk and talk ,PPT	4
5	Day 5	Database languages and interfaces	Chalk and talk ,PPT	5
6	Day 6	Database system environment, classification of dbms	Chalk and talk ,PPT	6
7	Day 7	Data modeling using E-R model	Chalk and talk ,PPT	7
8	Day 8	High level, conceptual data models for database design with example	Chalk and talk ,PPT	8
9	Day 9	Conceptual data models-entity types, sets, attributes, keys ,ER model concepts	Chalk and talk ,PPT	9
10	Day 10	notation for ER diagram, proper naming of schema constructs	Chalk and talk ,PPT	10
11	Day 11	Relational database	Chalk and talk ,PPT	11
12	Day 12	Concepts, attribute, tuple, types of attributes, single, multi-valued, stored, derived etc	Chalk and talk ,PPT	12
13	Day 13	Relational algebra operations-union, intersection, difference	Chalk and talk ,PPT	13
14	Day 14	Cartesian product, selection, projection, join, division	Chalk and talk ,PPT	14
15	Day 15	Relational calculus, domain, domain integrity	Chalk and talk ,PPT	15
16	Day 16	Integrity rules, entity rules, entity integrity, referential integrity	Chalk and talk ,PPT	16
17	Day 17	Normalization and its properties, I, II and III normal forms	Chalk and talk ,PPT	17
18	Day 18	DDL commands- create table/view, index, drop, alter	Chalk and talk ,PPT	18
19	Day 19	DML commands: select, insert, delete, update	Chalk and talk ,PPT	19
20	Day 20	Sql-query, sub-query, nested query	Chalk and talk ,PPT	20
21	Day 21	Aggregate function in sql	Chalk and talk ,PPT	21
22	Day 22	PL/SQL: Introduction, exceptions	Chalk and talk ,PPT	22
23	Day 23	Database Triggers, functions	Chalk and talk ,PPT	23

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Lesson Plan - Academic Year 2021-2022

Name of the Faculty: Suma C
Course: Artificial Intelligence
Class Strength: 80

Department: Computer Science
Course Code: BCA502T
Semester: V Sem BCA

CO1 Learn in detail applications of AI and search techniques
CO2 learn to represent kowledge
CO3 Learn to decompose problem
CO4 Learn the different mechanism of learning
co5 Learn the structure of Expert system

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	Introduction to Artificial Intelligence: Definition,	Chalk and Talk and ICT
2	Day 2	AI Applications,	Chalk and Talk and ICT
3	Day 3	AI representation,	Chalk and Talk and ICT
4	Day 4	Properties of internal Representation,	Chalk and Talk and ICT
5	Day 5	Heuristic search techniques.	Chalk and Talk and ICT
6	Day 6	Heuristic search techniques	Chalk and Talk and ICT
7	Day 7	Best first search,	Chalk and Talk and ICT
8	Day 8	mean and end analysis,	Chalk and Talk and ICT
9	Day 9	A* and AO* Algorithm,	Chalk and Talk and ICT
10	Day 10	Game Playing,	Chalk and Talk and ICT
11	Day 11	Minimize search procedure,	Chalk and Talk and ICT
12	Day 12	Alpha beta cutoffs.	Chalk and Talk and ICT
13	Day 13	Knowledge representation using predicate logic: predicate calculus,	Chalk and Talk and ICT
14	Day 14	Predicate and arguments.	Chalk and Talk and ICT
15	Day 15	Knowledge representation using non monotonic logic:	Chalk and Talk and ICT
16	Day 16	TMS (Truth maintenance system),	Chalk and Talk and ICT

17	Day 17	statistical and probabilistic reasoning,	Chalk and Talk and ICT
18	Day 18	statistical and probabilistic reasoning,	Chalk and Talk and ICT
19	Day 19	fuzzy logic,	Chalk and Talk and ICT
20	Day 20	structure knowledge representation,	Chalk and Talk and ICT
21	Day 21	semantic net,	Chalk and Talk and ICT
22	Day 22	Frames,	Chalk and Talk and ICT
23	Day 23	Script,	Chalk and Talk and ICT
24	Day 24	Conceptual dependency.	Chalk and Talk and ICT
25	Day 25	Planning: block world	Chalk and Talk and ICT
26	Day 26	strips	Chalk and Talk and ICT
27	Day 27	Implementation using goal stack	Chalk and Talk and ICT
28	Day 28	Non linear planning with goal stacks	Chalk and Talk and ICT
29	Day 29	Hierarchical planning	Chalk and Talk and ICT
30	Day 30	list commitment strategy.	Chalk and Talk and ICT
31	Day 31	Perception: Action	Chalk and Talk and ICT
32	Day 32	Robot Architecture	Chalk and Talk and ICT
33	Day 33	Vision	Chalk and Talk and ICT
34	Day 34	Texture and images	Chalk and Talk and ICT
35	Day 35	images	Chalk and Talk and ICT
36	Day 36	representing and recognizing scenes	Chalk and Talk and ICT
37	Day 37	Learning: Learning as induction matching algorithms.	Chalk and Talk and ICT
38	Day 38	Failure driver learning,	Chalk and Talk and ICT
39	Day 39	learning in general	Chalk and Talk and ICT
40	Day 40	problem solving concept learning.	Chalk and Talk and ICT
41	Day 41	Neural Networks: Introduction to neural networks	Chalk and Talk and ICT
42	Day 42	perception-qualitative Analysis only,	Chalk and Talk and ICT
43	Day 43	perception-qualitative Analysis only,	Chalk and Talk and ICT
44	Day 44	neural net architecture	Chalk and Talk and ICT
45	Day 45	neural net architecture	Chalk and Talk and ICT
46	Day 46	applications.	Chalk and Talk and ICT
47	Day 47	Natural language processing and understanding and pragmatic,	Chalk and Talk and ICT
48	Day 48	syntactic,	Chalk and Talk and ICT
49	Day 49	semantic,	Chalk and Talk and ICT

50	Day 50	analysis,	Chalk and Talk and ICT
51	Day 51	RTN,	Chalk and Talk and ICT
52	Day 52	ATN,	Chalk and Talk and ICT
53	Day 53	understanding sentences.	Chalk and Talk and ICT
54	Day 54	Expert system: Utilization	Chalk and Talk and ICT
55	Day 55	functionality,	Chalk and Talk and ICT
56	Day 56	architecture of expert system,	Chalk and Talk and ICT
57	Day 57	knowledge representation	Chalk and Talk and ICT
58	Day 58	two case studies on expert systems.	Chalk and Talk and ICT
59	Day 59	two case studies on expert systems.	Chalk and Talk and ICT

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Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Savitri K
Course: Data Structures
Class Strength: 82

Department: Computer Science
Course Code: CA-C3T
Semester: 1

CO1 Learn Data Structures, data Structures operations
CO2 Learn Linked list: Definition, Representation
CO3 Learn Binary Trees Graphs
CO4 Learn Searching Sorting

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit –I** Introduction and Overview: Definition, Elementary data organization	Chalk and talk, ICT	1
2	Day 2	Data Structures, data Structures operations	Chalk and talk, ICT	2
3	Day 3	Abstract data types	Chalk and talk, ICT	3
4	Day 4	algorithms complexity, time-space trade off.	Chalk and talk, ICT	4
5	Day 5	Preliminaries: Mathematical notations and functions	Chalk and talk, ICT	5
6	Day 6	Algorithmic notations, control structures	Chalk and talk, ICT	6
7	Day 7	Complexity of algorithms	Chalk and talk, ICT	7
8	Day 8	asymptotic notations for complexity of algorithms	Chalk and talk, ICT	8
9	Day 9	Arrays: Definition, Linear arrays, arrays as ADT	Chalk and talk, ICT	9
10	Day 10	Representation of Linear Arrays in Memory	Chalk and talk, ICT	10
11	Day 11	Traversing Linear arrays, Inserting and deleting		11
12	Day 12	Multi-dimensional arrays, Matrices and Sparse matrices	Chalk and talk, ICT	12
13	Day 13	**UNIT-II** Linked list: Definition, Representation of Singly Linked List	Chalk and talk, ICT	13

14	Day 14	Traversing a Singly linked list, searching in a Singly linked list	Chalk and talk, ICT	14
15	Day 15	Memory allocation, Garbage collection, Insertion into a singly linked	Chalk and talk, ICT	15
16	Day 16	singly linked list; Doubly linked list, Header linked list, Circular link	Chalk and talk, ICT	16
17	Day 17	Definition, Array representation of stacks	Chalk and talk, ICT	17
18	Day 18	Linked representation of stacks, Stack as ADT	Chalk and talk, ICT	18
19	Day 19	Arithmetic Expressions: Polish Notation, Conversion of infix expression to postfix expression		19
20	Day 20	Evaluation of Post fix expression	Chalk and talk, ICT	20
21	Day 21	Application of Stacks, Recursion, Towers of Hanoi, Implementation of recursive procedures by stack.	Chalk and talk, ICT	21
22	Day 22	Queues: Definition, Array representation of queue, Linked list represe	Chalk and talk, ICT	22
23	Day 23	Types of queue: Simple queue, Circular queue, Double-ended queue		23
24	Day 24	Priority queue, Operations on Queues, Applications of queues.	Chalk and talk, ICT	24
25	Day 25	**UNIT-III** Binary Trees: Definitions	Chalk and talk, ICT	25
26	Day 26	Tree Search, Traversal of Binary Tree	Chalk and talk, ICT	26
27	Day 27	Tree Sort, Building a Binary Search Tree	Chalk and talk, ICT	27
28	Day 28	Height Balance: AVL Trees, Contiguous Representation of Binary Tre	Chalk and talk, ICT	28
29	Day 29	Heaps, Lexicographic Search	Chalk and talk, ICT	29
30	Day 30	Trees: Tries, External	Chalk and talk, ICT	30
31	Day 31	**UNIT-IV** Searching: B-Trees, Applications of Trees	Chalk and talk, ICT	31
32	Day 32	Graphs: Mathematical Back ground	Chalk and talk, ICT	32
33	Day 33	Computer Representation, Graph Traversal	Chalk and talk, ICT	33

34	Day 34	Topological Sorting	Chalk and talk, ICT	34
35	Day 35	Searching: Introduction and Notation	Chalk and talk, ICT	35
36	Day 36	Sequential Search, Binary Search	Chalk and talk, ICT	36
37	Day 37	Comparison of Methods.	Chalk and talk, ICT	37
38	Day 38	Sorting: Introduction and Notation, Insertion Sort	Chalk and talk, ICT	38
39	Day 39	Selection Sort, Shell Sort, Divide and Conquer	Chalk and talk, ICT	39
40	Day 40	Merge sort for Linked List, Quick sort for Contiguous List	Chalk and talk, ICT	40
41	Day 41	Hashing: Sparse Tables, Choosing a Hash function,	Chalk and talk, ICT	41
42	Day 42	Collision Resolution with Open Addressing	Chalk and talk, ICT	42
43	Day 43	Collision Resolution by Chaining	Chalk and talk, ICT	43

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Lesson Plan - Academic Year - 2021-22

Name of the Faculty: **Dhanashri Vaishali**

Department: Computer Science

Course: BCA

Course Code:

Class Strength: 80

Semester: 5

CO1 Understand in depth about the algorithm and its analysis
CO2 Understand in depth the concept of divide and conquer
CO3 Identify in depth Greedy techniques
CO4 Understand in depth about graphs,knapsack problems
CO5 Specify in details searching and traversal techniques

Sl.No	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction:definition of algorithm	ICT	1
2	Day 2	Application areas of algorithm	ICT	2
3	Day 3	Characteristics of algorithm , need of studying algorithm	ICT	3
4	Day 4	Properties of algorithm	ICT	4
5	Day 5	order of growth	ICT	5
6	Day 6	worst case,best case and average case efficiency	ICT	6
7	Day 7	asymptotic notations	ICT	7
8	Day 8	Basic efficiency classes	ICT	8
9	Day 9	Time complexity	ICT	9
10	Day 10	Mathematical analysis of recursive and non-recursive algorithm	ICT	10
11	Day 11	Bubble sort	ICT	11
12	Day 12	Insertion sort	ICT	12
13	Day 13	Introduction to control abstraction	ICT	13
14	Day 14	Master theorem,substitution method of solving recurrence relations	ICT	14
15	Day 15	Binary search using iterative & recursive method	ICT	15

16	Day 16	Finding maximum and minimum algorithm	ICT	16
17	Day 17	Merge sort:algorithm, trace program and complexity	ICT	17
18	Day 18	Advantages and dis-advantages of merge sort	ICT	18
19	Day 19	Quick sort	ICT	19
20	Day 20	Quick sort example	ICT	20
21	Day 21	Selection sort	ICT	21
22	Day 22	Greedy techniques:general method,control abstraction	ICT	22
23	Day 23	The knapsack problem	ICT	23
24	Day 24	Job sequencing with deadlines	ICT	24
25	Day 25	Minimum cost spanning tree:Prims algorithm	ICT	25
26	Day 26	Kruskal algorithm	ICT	26
27	Day 27	Single sorce shortest paths	ICT	27
28	Day 28	Example of Prims algorithm	ICT	28
29	Day 29	Example of Kruskal algorithm	ICT	29
30	Day 30	Dynamic programming:Introduction	ICT	30
31	Day 31	Introduction to graphs	ICT	31
32	Day 32	Example on graphs	ICT	32
33	Day 33	Multistage graphs	ICT	33
34	Day 34	Example on multistage graphs	ICT	34
35	Day 35	All pair shortest paths	ICT	35
36	Day 36	0/1 knapsack problem	ICT	36
37	Day 37	The travelling salesman problem	ICT	37
38	Day 38	Flow shop scheduling	ICT	38
39	Day 39	Basic traversal and search technique introduction	ICT	39
40	Day 40	Binary tree	ICT	40
41	Day 41	Recursive algorithm to find height of tree	ICT	41
42	Day 42	Extended binary tree	ICT	42
43	Day 43	Binary tree traversal	ICT	43
44	Day 44	Graph techniques DFS	ICT	44
45	Day 45	Depth first search traversal	ICT	45
46	Day 46	Backtracking-general method	ICT	46
47	Day 47	N-Queen problem	ICT	47
48	Day 48	Sum of subsets,graph coloring	ICT	48

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Lesson Plan - Academic Year - 2021-22

Name of the Faculty: **Dhanashri Vaishali**

Department: Computer Science

Course: **Visual Programming**
Class Strength: 40

Course Code: SC2C52
Semester: 5

CO1 Understand in depth Visual Programming,Events,methods,properties,controls
CO2 Understand in depth Data types,functions,procedures,arrays
CO3 Identify in depth OOPs methods and properties,class modules,DLL's
CO4 Write down the characteristics of Visual C++ programming,vc++ components,resources,MFC file handling
CO5 Specify in details with application, if applicable, Interfacing other application,MDI,splitter windows,exception handling

Sl.No	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day1	Introduction to Visual Programming: The IDE- menu bar, tool bar ,form designer,project explorer	ICT	1
2	Day2	Properties window, form layout window, the visual programming editor	ICT	2
3	Day3	The form object:Properties, events and methods of forms; properties-name,caption,backcolor,border style	ICT	3
4	Day4	control box, max button, min button, movable, startup position, height, width, left , top, scale mode,window,state	ICT	4
5	Day5	Events- load,unload, activate, deactivate, resize	ICT	5
6	Day6	methods-show,hide,cls,unload,print,	ICT	6
7	Day7	Controls-properites and events of different controls such as command	ICT	7
8	Day8	Buttons,labels,textboxes,image	ICT	8
9	Day9	controls, timer, horizontal and vertical scroll bars, option buttons,check boxes, frame, list and combo boxes	ICT	9
10	Day10	Predefined dialog boxes-msgbox and input box	ICT	10
11	Day11	Programming:data types, variables:declaration and scope arithematic operators	ICT	11
12	Day12	Study of form and code modules, private and public procedures, main procedure, sub functions, mathematical and string functions	ICT	12
13	Day13	Branching and looping statements: if-then	ICT	13

14	Day14	if-then-else and nested if statements	ICT	14
15	Day15	Select case-different forms; for-next,	ICT	15
16	Day16	While-wend and do-loops	ICT	16
17	Day17	statements array-declaration, static and dynamic arrays, array and functions	ICT	17
18	Day18	Menus and toolbars-creating menus and toolbars, working with the menu editor	ICT	18
19	Day19	Designing multiple document interface forms, microsoft common controls	ICT	19
20	Day20	OOP methods and properties of an object	ICT	20
21	Day21	Class modules, encapsulation	ICT	21
22	Day22	Inheritance characteristics	ICT	22
23	Day23	Dynamic link libraries(DLLs)	ICT	23
24	Day24	Windows API; Designing help files,	ICT	24
25	Day25	File handling- sequentil, random access and binary files	ICT	25
26	Day26	Database connectivity-DAO and ADO	ICT	26
27	Day27	Tables and queries,	ICT	27
28	Day28	Active X data objects.	ICT	28
29	Day29	Visual C++ programming:objects, classes, VC++ components, resources	ICT	29
30	Day30	Event handling, menus,dialog boxes,importing vbx controls	ICT	30
31	Day31	Files,MFC file handling	ICT	31
32	Day32	Document view architecture,	ICT	32
33	Day33	Serialization	ICT	33
34	Day34	Interfacing other applications, MDI	ICT	34
35	Day35	Splitter windows, exception handling,	ICT	35
36	Day36	Debugging, object linking	ICT	36
37	Day37	Embedding(OLE),	ICT	37
38	Day38	Database application,	ICT	38
39	Day39	DLL, ODBC	ICT	39

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Shilpa Nayak
Course: PST
Class Strength: 39

Department: Computer Science
Course Code: CS-C1T
Semester: 1

CO1	Define the basic concepts of algorithms and analyze the performance of algorithms. Design various algorithm techniques for developing algorithms.
CO2	Develop programming skills using the fundamentals and basics of C Language. Develop programs using the basic elements like control statements, Arrays and Strings. Enable effective usage of arrays, structures, functions and pointers. Implement files and command line arguments.
CO3	Undestanding the concepts and describing an appropriate method for factoring and implementation of array techniques.
CO4	Undestanding the concepts of merging, Sorting, Pattern searching and their implementation.

Hours	Date of completion	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction: The Role of Algorithms in Computing, Algorithms as a technology,	Chalk and Talk, ICT	1
2	Day 2	Analyzing algorithms,	Chalk and Talk, ICT	2
3	Day 3	Designing algorithms,	Chalk and Talk, ICT	3
4	Day 4	Growth of Functions,	Chalk and Talk, ICT	4
5	Day 5	Asymptotic notation,	Chalk and Talk, ICT	5
6	Day 6	Standard notations and common functions.	Chalk and Talk, ICT	6
7	Day 7	Fundamental Algorithms: Exchanging the values of two variables, Counting,	Chalk and Talk, ICT	7
8	Day 8	Summation of a set of numbers, Factorial Computation,	Chalk and Talk, ICT	8
9	Day 9	Generating of the Fibonacci sequence,	Chalk and Talk, ICT	9
10	Day 10	Reversing the digits of an integer,	Chalk and Talk, ICT	10
11	Day 11	Base Conversion,	Chalk and Talk, ICT	11
12	Day 12	Character to number conversion.	Chalk and Talk, ICT	12
13	Day 13	C Programming: Getting Started,	Chalk and Talk, ICT	13

14	Day 14	Variables and Arithmetic expressions.	Chalk and Talk, ICT	14
15	Day 15	Input and Output: Standard input and output,	Chalk and Talk, ICT	15
16	Day 16	formatted output- printf,	Chalk and Talk, ICT	16
17	Day 17	variable length argument list, formatted input-scanf.	Chalk and Talk, ICT	17
18	Day 18	Control Flow: Statements and Blocks,	Chalk and Talk, ICT	18
19	Day 19	If-else,	Chalk and Talk, ICT	19
20	Day 20	else-if,	Chalk and Talk, ICT	20
21	Day 21	switch,	Chalk and Talk, ICT	21
22	Day 22	loops: while loop,	Chalk and Talk, ICT	22
23	Day 23	for loop,	Chalk and Talk, ICT	23
24	Day 24	do while,	Chalk and Talk, ICT	24
25	Day 25	break and continue,	Chalk and Talk, ICT	25
26	Day 26	goto and labels.	Chalk and Talk, ICT	26
27	Day 27	Pointers and Arrays: pointers and address,	Chalk and Talk, ICT	27
28	Day 28	pointers and function arguments,	Chalk and Talk, ICT	28
29	Day 29	multidimensional array,	Chalk and Talk, ICT	29
30	Day 30	initialization of pointer arrays,	Chalk and Talk, ICT	30
31	Day 31	command line arguments.	Chalk and Talk, ICT	31
32	Day 32	Factoring Methods: Finding the square root of a number,	Chalk and Talk, ICT	32
33	Day 33	the smallest Divisor of an integer,	Chalk and Talk, ICT	33
34	Day 34	the greatest common divisor of two integers,	Chalk and Talk, ICT	34
35	Day 35	generating prime numbers,	Chalk and Talk, ICT	35
36	Day 36	computing the prime factors of an integer,	Chalk and Talk, ICT	36
37	Day 37	generation of pseudo random numbers,	Chalk and Talk, ICT	37
38	Day 38	raising a number to a large power,	Chalk and Talk, ICT	38
39	Day 39	computing the nth Fibonacci Number.	Chalk and Talk, ICT	39
40	Day 40	Array Techniques: Array order Reversal,	Chalk and Talk, ICT	40
41	Day 41	Array counting or Histogramming,	Chalk and Talk, ICT	41
42	Day 42	Finding the maximum number in a set,	Chalk and Talk, ICT	42
43	Day 43	removal of duplicates from an ordered array,	Chalk and Talk, ICT	43
44	Day 44	partitioning an array,	Chalk and Talk, ICT	44
45	Day 45	Finding the kth smallest element,	Chalk and Talk, ICT	45
46	Day 46	multiplication of two matrices.	Chalk and Talk, ICT	46

47	Day 47	Merging: the two-way merge.	Chalk and Talk, ICT	47
48	Day 48	Sorting: Sorting by selection,	Chalk and Talk, ICT	48
49	Day 49	sorting by exchange,	Chalk and Talk, ICT	49
50	Day 50	sorting by insertion,	Chalk and Talk, ICT	50
51	Day 51	sorting by diminishing increment,	Chalk and Talk, ICT	51
52	Day 52	sorting by partitioning.	Chalk and Talk, ICT	52
53	Day 53	Searching: binary search,	Chalk and Talk, ICT	53
54	Day 54	hash search.	Chalk and Talk, ICT	54
55	Day 55	Text processing and Pattern searching: text line length adjustment, left and right justification of text,	Chalk and Talk, ICT	55
56	Day 56	keyword searching in text	Chalk and Talk, ICT	56
57	Day 57	text line editing,	Chalk and Talk, ICT	57
58	Day 58	linear pattern search,	Chalk and Talk, ICT	58
59	Day 59	sublinear pattern search.	Chalk and Talk, ICT	59

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021 - 22

Name of the Faculty: Shilpa Nayak
Course: TOC
Class Strength: 80

Department: Computer Science
Course Code: BCA505T
Semester: 5

CO1	Identify in depth Introduction to Finite Automata: The central concepts of Automata theory; Deterministic finite automata; Nondeterministic finite automata. An application of finite automata, Finite automata with Epsilon transitions
CO2	Deliberate the details of Regular Expressions: Finite Automata and Regular Expressions Applications of Regular Expressions. Regular languages; Proving languages not to be regular languages; Closure properties of regular languages
CO3	Understand the details of Context–free grammars: Parse trees; Applications; Ambiguity in grammars and Languages. Definition of the Pushdown automata; the languages of a PDA; Equivalence of PDA's and CFG's
CO4	Specify in details with examples Deterministic Pushdown Automata:Normal forms for CFGs; The pumping lemma for CFGs; Closure properties of CFL
CO5	Specify the classification and characteristics of The Turing machine:Programming techniques for Turing Machines. Undecidability, A Language that is not recursively enumerable

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction to Finite Automata	Chalk and talk	1
2	Day 2	The central concepts of Automata theory	Chalk and talk	2
3	Day 3	Finite automata, transition diagram	Chalk and talk	3
4	Day 4	Applications of FA, Types of FA	Chalk and talk	4
5	Day 5	Deterministic finite automata	Chalk and talk	5
6	Day 6	Language Accepted by a DFA	Chalk and talk	6
7	Day 7	DFA Design, Divisible by k problems	Chalk and talk	7
8	Day 8	Nondeterministic finite automata	Chalk and talk	8
9	Day 9	construction of DFA from NFA	Chalk and talk	9
10	Day 10	An application of finite automata	Chalk and talk	10
11	Day 11	Finite automata with Epsilon transitions.	Chalk and talk	11
12	Day 12	Regular Expressions	Chalk and talk	12
13	Day 13	Finite Automata and Regular Expressions Applications of Regular Expressions	Chalk and talk	13

14	Day 14	Basic operations of Regular Expressions	Chalk and talk	14
15	Day 15	Construction of DFA from regular Expression	Chalk and talk	15
16	Day 16	Construction of E-NFA from Regular Expression	Chalk and talk	16
17	Day 17	Construction of Regular Expression from Finite Automata	Chalk and talk	17
18	Day 18	Regular languages	Chalk and talk	18
19	Day 19	Proving languages not to be regular languages; Closure	Chalk and talk	19
20	Day 20	properties of regular languages	Chalk and talk	20
21	Day 21	Decision properties of regular languages	Chalk and talk	21
22	Day 22	Equivalence and minimization of automata.	Chalk and talk	22
23	Day 23	Pumping Lemma for regular languages	Chalk and talk	23
24	Day 24	Grammar, Types of grammar	Chalk and talk	24
25	Day 25	Context – free grammars	Chalk and talk	25
26	Day 26	Design of context free grammar from finite automata	Chalk and talk	26
27	Day 27	Design of context free grammar from Languages	Chalk and talk	27
28	Day 28	Design of CFG from Regular Expressions	Chalk and talk	28
29	Day 29	parsing/Derivation	Chalk and talk	29
30	Day 30	parse trees	Chalk and talk	30
31	Day 31	Applications of CFG	Chalk and talk	31
32	Day 32	Ambiguity in grammars and Languages	Chalk and talk	32
33	Day 33	Definition of the Pushdown automata	Chalk and talk	33
34	Day 34	the languages of a PDA	Chalk and talk	34
35	Day 35	Equivalence of PDA's and CFG's.	Chalk and talk	35
36	Day 36	Deterministic Pushdown Automata	Chalk and talk	36
37	Day 37	Substitution left recursion	Chalk and talk	37
38	Day 38	Simplification of CFG	Chalk and talk	38
39	Day 39	Elimination of useless symbols	Chalk and talk	39
40	Day 40	Eliminating E-productions	Chalk and talk	40
41	Day 41	Eliminating Unit productions	Chalk and talk	41
42	Day 42	Normal forms for CFGs	Chalk and talk	42
43	Day 43	The pumping lemma for CFGs	Chalk and talk	43
44	Day 44	Closure properties of CFLs	Chalk and talk	44
45	Day 45	Problems that Computers cannot solve	Chalk and talk	45

46	Day 46	Chomsky normal form[CNF]	Chalk and talk	46
47	Day 47	programming techniques for Turing Machines	Chalk and talk	47
48	Day 48	Construction of Turing Machine	Chalk and talk	48
49	Day 49	Types of Turing machine	Chalk and talk	49
50	Day 50	Recursive and recursively enumerable languages	Chalk and talk	50
51	Day 51	Halting problem of Turing machine	Chalk and talk	51
52	Day 52	An Undecidable problem that is RE	Chalk and talk	52
53	Day 53	Post's Correspondence problem	Chalk and talk	53
54	Day 54	A Language that is not recursively enumerable	Chalk and talk	54

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2020-21

Name of the Faculty: R Srividya
Course: Operating System
Class Strength: 80

Department: Computer Science
Course Code: BCA305T
Semester: 3

CO1	Deliberate in details with application, if applicable, Batch Systems, Concepts of Multi programming and Time Sharing
CO2	Identify in details with application, if applicable, Process Synchronization and deadlocks
CO3	Learn the details of Memory Management
CO4	Learn the details of File management
CO5	Deliberate in details with examples Protection and Security

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	Introduction:Batch systems, concepts of multiprogramming and time sharing	Chalk and talk, ICT	1
2	Day 2	Parallel, Distributed and real time Systems,	Chalk and talk, ICT	2
3	Day 3	Operating System Structures,	Chalk and talk, ICT	3
4	Day 4	Components & Services,	Chalk and talk, ICT	4
5	Day 5	System calls, System programs,	Chalk and talk, ICT	5
6	Day 6	Virtual machines.	Chalk and talk, ICT	6
7	Day 7	Process Management: Process Concept,	Chalk and talk, ICT	7
8	Day 8	Process Scheduling, Co – Operating process,	Chalk and talk, ICT	8
9	Day 9	Threads, Inter process communication,	Chalk and talk, ICT	9
10	Day 10	CPU Scheduling Criteria,	Chalk and talk, ICT	10
11	Day 11	Scheduling algorithm, Multiple processor scheduling	Chalk and talk, ICT	11
12	Day 12	Real time Scheduling,	Chalk and talk, ICT	12
13	Day 13	Algorithm evolution	Chalk and talk, ICT	13
14	Day 14	Process synchronization and deadlocks:the critical section problem	Chalk and talk, ICT	14
15	Day 15	Synchronization hardware	Chalk and talk, ICT	15

16	Day 16	Semaphores	Chalk and talk, ICT	16
17	Day 17	Classical problems of synchronization-Producer-consumer problem	Chalk and talk, ICT	17
18	Day 18	Reader writer problem, Dining-Philosophers problem		18
19	Day 19	Critical regions, monitors	Chalk and talk, ICT	19
20	Day 20	Dead locks – system model	Chalk and talk, ICT	20
21	Day 21	Characterization	Chalk and talk, ICT	21
22	Day 22	Dead lock prevention	Chalk and talk, ICT	22
23	Day 23	Avoidance of Dead locks	Chalk and talk, ICT	23
24	Day 24	detection of deadlocks		24
25	Day 25	Recovery from dead lock	Chalk and talk, ICT	25
26	Day 26	Combined approach to deadlock handling.	Chalk and talk, ICT	26
27	Day 27	Memory Management:Logical and physical address space	Chalk and talk, ICT	27
28	Day 28	Swapping	Chalk and talk, ICT	28
29	Day 29	Contiguous allocation	Chalk and talk, ICT	29
30	Day 30	Paging	Chalk and talk, ICT	30
31	Day 31	Segmentation	Chalk and talk, ICT	31
32	Day 32	Segmentation with paging in Mastics and Intel 386,	Chalk and talk, ICT	32
33	Day 33	Virtual memory-Demand paging and its performance	Chalk and talk, ICT	33
34	Day 34	Page replacement algorithms-FCFS,Optimal page replacement	Chalk and talk, ICT	34
35	Day 35	LRU,LFU,MFU		35
36	Day 36	Allocation of frames	Chalk and talk, ICT	36
37	Day 37	Thrashing-Locality model	Chalk and talk, ICT	37
38	Day 38	Working set model		38
39	Day 39	page size and other considerations	Chalk and talk, ICT	39
40	Day 40	Demand Segmentation.	Chalk and talk, ICT	40
41	Day 41	File management(systems, secondary storage structure):File concepts	Chalk and talk, ICT	41
42	Day 42	Access methods	Chalk and talk, ICT	42
43	Day 43	Directory Structure, Protection and consistency,	Chalk and talk, ICT	43
44	Day 44	File system structure	Chalk and talk, ICT	44
45	Day 45	Allocation methods	Chalk and talk, ICT	45
46	Day 46	Free space management	Chalk and talk, ICT	46
47	Day 47	Directory Implementation	Chalk and talk, ICT	47

48	Day 48	Efficiency and Performance, Recovery.	Chalk and talk, ICT	48
49	Day 49	Disk Management(Structure, disk scheduling methods): Disk structure	Chalk and talk, ICT	49
50	Day 50	Scheduling methods-FCFS,SSTF	Chalk and talk, ICT	50
51	Day 51	SCAN,C-SCAN		51
52	Day 52	Disk management	Chalk and talk, ICT	52
53	Day 53	Swap – Space management	Chalk and talk, ICT	53
54	Day 54	Protection and Security: Goals of protection	Chalk and talk, ICT	54
55	Day 55	Domain Protection	Chalk and talk, ICT	55
56	Day 56	Access matrix	Chalk and talk, ICT	56
57	Day 57	Security Problem	Chalk and talk, ICT	57
58	Day 58	Authentication,	Chalk and talk, ICT	58
59	Day 59	One time password	Chalk and talk, ICT	59
60	Day 60	program threats, System threads.	Chalk and talk, ICT	60
61	Day 61	Case Study of Windows and Linux Operating System	Chalk and talk, ICT	61

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: R Srividya
Course: Java Programming
Class Strength: 80

Department: Computer Science
Course Code: BCA503T
Semester: 5

CO1 Write down in details with examples Introduction to JAVA
CO2 Write down in depth Classes, Arrays, Strings and Vectors
CO3 Write down the details of Interfaces, Packages, and Multi threaded Programming
CO4 Understand the classification and characteristics of Managing Exceptions, Applet Programming
CO5 Identify the classification and characteristics of Graphics Programming, Input/Output: Graphics programming

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit –I:** Introduction to JAVA: JAVA Evolution: Java History, Java Features, How Java Differs from C and C++	Chalk and talk, ICT	1
2	Day 2	Java and Internet, Java and World Wide Web, Web Browsers, Hardware and Software Requirements, Java Support Systems, Java Environment.	Chalk and talk, ICT	2
3	Day 3	Overview of JAVA Language: Introduction, Simple Java program, More of Jav	Chalk and talk, ICT	3
4	Day 4	Java Virtual Machine, Command Line Arguments, Programming Style.	Chalk and talk, ICT	4
5	Day 5	Constants, Variables, and Data Types: Introduction, Constants, Variables,	Chalk and talk, ICT	5
6	Day 6	Data Types, Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants,	Chalk and talk, ICT	6
7	Day 7	Type Casting, Getting Values of Variables, Standard Default Values	Chalk and talk, ICT	7
8	Day 8	Operators and Expressions: Introduction, Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators,	Chalk and talk, ICT	8
9	Day 9	Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special Operators	Chalk and talk, ICT	9

10	Day 10	Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators,	Chalk and talk, ICT	10
11	Day 11	Type Conversion and Associativity, Mathematical Functions		11
12	Day 12	Decision Making and Branching: Introduction, Decision Making with if Statement, Simple if , The if…..else , Nesting if, The else if Ladder	Chalk and talk, ICT	12
13	Day 13	The Switch Statement, The ?: Operator.	Chalk and talk, ICT	13
14	Day 14	Decision Making and Looping: Introduction. The while , do, for, labelled loops, Jump statements	Chalk and talk, ICT	14
15	Day 15	**Unit-II:** Classes, Arrays, Strings and Vectors: Classes, Objects and Methods: Introduction, Defining a Class, Adding Variables,methods	Chalk and talk, ICT	15
16	Day 16	Creating Objects, Accessing Class Members, Constructors	Chalk and talk, ICT	16
17	Day 17	Methods Overloading,Static Members, Nesting of Methods	Chalk and talk, ICT	17
18	Day 18	Inheritance: Extending a Class Overriding Methods,	Chalk and talk, ICT	18
19	Day 19	Final Variables and Methods, Finalizer methods,		19
20	Day 20	Abstract Methods and Classes, Visibility Control	Chalk and talk, ICT	20
21	Day 21	Arrays, Strings and Vectors: Arrays, One-dimensional ,two-dimentional Arrays, Creating an Array,	Chalk and talk, ICT	21
22	Day 22	Strings, Vectors,	Chalk and talk, ICT	22
23	Day 23	Wrapper Classes.		23
24	Day 24	**Unit - III:** Interfaces, Packages, and Multithreaded Programming: Interfaces: Multiple Inheritance: Introduction, Defining Interfaces,	Chalk and talk, ICT	24
25	Day 25	Extending Interfaces, Implementing Interfaces,Accessing Interface Variables	Chalk and talk, ICT	25
26	Day 26	Packages: Putting Classes together: Introduction, Java API Packages		26
27	Day 27	Using System Packages, Naming Conventions,Creating Packages	Chalk and talk, ICT	27
28	Day 28	Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes.	Chalk and talk, ICT	28
29	Day 29	MultithreadedProgramming: Introduction, CreatingThreads, Extending the Thread Class, Stopping and Blocking a thread,	Chalk and talk, ICT	29
30	Day 30	Life Cycle of a thread, Using Thread Methods	Chalk and talk, ICT	30
31	Day 31	Thread Exceptions, Thread Priority, Synchronization Implementing the 'Runnable' Interface	Chalk and talk, ICT	31

32	Day 32	**Unit - IV:** Managing Exceptions, Applet Programming: Managing Errors and Exception: Introduction, Types of Exception Handling Code,	Chalk and talk, ICT	32
33	Day 33	Multiple Catch Statements, Using Finally Statement,	Chalk and talk, ICT	33
34	Day 34	Throwing Our Own Exceptions, Using Exceptions for Debugging		34
35	Day 35	Applet Programming: Introduction, How Applets Differ from Applications, Preparing to Write Applets,	Chalk and talk, ICT	35
36	Day 36	Building Applet Code, Applet Life Cycle,		36
37	Day 37	Creating an Executable applet, Designing a Web Page, Applet Tag,	Chalk and talk, ICT	37
38	Day 38	Adding Applet to HTML File, running the Applet, More About HTML Tags,	Chalk and talk, ICT	38
39	Day 39	Displaying Numerical Values, Getting Input from the User.		39
40	Day 40	**Unit - V:** Graphics programming , input/output :graphics porgraming introduction. Graphics class,		40
41	Day 41	lines and rectangles, cicles, and Ellipses	Chalk and talk, ICT	41
42	Day 42	Drawing Arcs, Drawing polygons, Lines graphs	Chalk and talk, ICT	42
43	Day 43	using control loops in applets, drawing bar charts.		43
44	Day 44	Managing input/output files in jave : introduction , concept of streams, stream stream classes, byte stream classes,	Chalk and talk, ICT	44
45	Day 45	character stream clases, using streams, other useful i/o classes,	Chalk and talk, ICT	45
46	Day 46	using the file class, I/o exceptions, creation of files, reading/writing characters,	Chalk and talk, ICT	46
47	Day 47	reading/ writing bytes, , handling primitive datatypes concatenating and buffering files	Chalk and talk, ICT	47
48	Day 48	interactive input and output, other stream classes	Chalk and talk, ICT	48

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Lakshmipathi V

Course: C++

Class Strength: 80

Department: Computer Science

Course Code: BCA303T

Semester: 3

CO1	understand the c++ features, functions
CO2	learn in depth about Objects and Classes, Constructors & destructors
CO3	Specify characteristics of Operator overloading
CO4	Identify the purpose of Virtual functions, friend function
CO5	Learn in details with examples about Template concept and Exception handling methods

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day 1	**Unit I:Introduction:**Procedural languages, OOP – definition ,Basic Concept of OOP	Chalk and Talk, ICT	1
2	Day 2	Object, class, data abstraction, encapsulation, data hiding, Reusability	Chalk and Talk, ICT	2
3	Day 3	Inheritance, creating new data types, polymorphism, Overloading, Dynamic binding & message passing	Chalk and Talk, ICT	3
4	Day 4	**C++ Features:** iostream class, comments, keywords, Variable declaration	Chalk and Talk, ICT	4
5	Day 5	Const Qualifier, Endl, set waste precision	Chalk and Talk, ICT	5
6	Day 6	Manipulators, scope resolution operator, new & delete operations	Chalk and Talk, ICT	6
7	Day 7	**Functions:** Function declaration , simple functions, calling the function, passing argument to, returning value from function, function constants	Chalk and Talk, ICT	7
8	Day 8	Variables, pass by value, pass by reference, passing structure variables	Chalk and Talk, ICT	8
9	Day 9	Return statements, return by reference	Chalk and Talk, ICT	9
10	Day 10	overloaded functions, different number and kinds of arguments	Chalk and Talk, ICT	10
11	Day 11	inline function	Chalk and Talk, ICT	11
12	Day 12	**Unit II:Objects and Classes:** Classes and Objects, class declaration, class member	Chalk and Talk, ICT	12
13	Day 13	class member visibility, creating objects, accessing class members, member functions	Chalk and Talk, ICT	13

14	Day 14	Defining an inline function, nesting of member functions, arrays as class members, array of objects	Chalk and Talk, ICT	14
15	Day 15	Objects as arguments, returning objects, assigning objects, memory allocation	Chalk and Talk, ICT	15
16	Day 16	Static class members, local classes, nested classes	Chalk and Talk, ICT	16
17	Day 17	**Constructors and Destructors:**Meaning, declaration, Types of constructors.	Chalk and Talk, ICT	17
18	Day 18	Constructors with arguments, without arguments, constructor overloading, constructor with Default arguments	Chalk and Talk, ICT	18
19	Day 19	Dynamic constructors, Dynamic initialization of objects	Chalk and Talk, ICT	19
20	Day 20	String manipulation using constructors	Chalk and Talk, ICT	20
21	Day 21	Destructors	Chalk and Talk, ICT	21
22	Day 22	Class conversion , manipulating private data members	Chalk and Talk, ICT	22
23	Day 23	**Unit III:Operator Overloading:**Overloading unary operator, operator keyword, operator arguments	Chalk and Talk, ICT	23
24	Day 24	Operator return value, nameless temporary objects, limitations of increment operator	Chalk and Talk, ICT	24
25	Day 25	Overloading Binary operators- arithmetic comparision, arithmetic operators	Chalk and Talk, ICT	25
26	Day 26	Data conversions	Chalk and Talk, ICT	26
27	Day 27	UML class diagrams, pitfalls of operator over loading, differences between function overloading and operator overloading	Chalk and Talk, ICT	27
28	Day 28	**Inheritance:**Introduction , derived class and base class, specifying derived class, accessing base class members	Chalk and Talk, ICT	28
29	Day 29	Protected access specifier, derived class constructor, overriding member functions	Chalk and Talk, ICT	29
30	Day 30	Public and private inheritance, access combinations, Classes and structures	Chalk and Talk, ICT	30
31	Day 31	Access specifiers, level of inheritance, Multilevel inheritance, hybrid inheritance	Chalk and Talk, ICT	31
32	Day 32	Multiple inheritance, member functions in multiple inheritance, constructors	Chalk and Talk, ICT	32
33	Day 33	Containership, classes with in classes, inheritance and program development	Chalk and Talk, ICT	33
34	Day 34	Comparision of inheritance types and their benefits	Chalk and Talk, ICT	34
35	Day 35	**Unit IV:Virtual functions:**Normal member function accessed with pointers, virtual member functions accessed with pointers	Chalk and Talk, ICT	35
36	Day 36	Dynamic Binding, virtual functions	Chalk and Talk, ICT	36
37	Day 37	Pure virtual polymorphism, abstract classes and pure virtual functions, virtual base class	Chalk and Talk, ICT	37
38	Day 38	Friend functions, this pointer	Chalk and Talk, ICT	38
39	Day 39	**Templates and exception handling:**Templates, class templates, function templates	Chalk and Talk, ICT	39
40	Day 40	Template arguments, rules for function templates	Chalk and Talk, ICT	40

41	Day 41	UML and templates, exception handling	Chalk and Talk, ICT	41
42	Day 42	Exception mechanism	Chalk and Talk, ICT	42
43	Day 43	**Unit V:Streams:**Stream class hierarchy, stream classes, advantages	Chalk and Talk, ICT	43
44	Day 44	Header file, string I/O: writing , reading strings	Chalk and Talk, ICT	44
45	Day 45	Character I/O, detecting end-of-file	Chalk and Talk, ICT	45
46	Day 46	Object I/O, writing, reading object to and from disk, I/O with multiple objects	Chalk and Talk, ICT	46
47	Day 47	fstream class, open function	Chalk and Talk, ICT	47
48	Day 48	File pointers, specifying the position and offset	Chalk and Talk, ICT	48
49	Day 49	Tellg function, disk I/O with memory functions, closing files	Chalk and Talk, ICT	49
50	Day 50	Closing files, error handling, command line arguments	Chalk and Talk, ICT	50

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Lesson Plan - Academic Year - 2021-22

Name of the Faculty: Lakshmipathi V

Department: Computer Science

Course: DCN

Course Code: BCA501T

Class Strength: 80

Semester: 5

CO1	Learn in depth Communication Network and services, Approaches to Network Design, Network Functions and Network Topology, Message ,packet and circuit Switching , Internet, Packet Switching ; Key factors in Communication Network Evolution ; Layered
CO2	Specify in details with examples Transmission Systems:properties, transmission media, Error detactions and error correction techniques, TDM,FDM, SONET, Cellular Networks
CO3	Learn the characteristics of Local Area Networks and Medium access Control Protocols, ALOHA, CSMA, CSMA/CD, Channelization – FDMA, TDMA, CDMA
CO4	Learn the characteristics of Peer –to-Peer Protocols, ARQ protocol and types, DLC, HDLC, PPP, Statistical multiplexing
CO5	Identify in details with examples LAN Standard – Ethernet and IEF, 802.3, LAN Bridges , Routing algorithms, congestion control algorithms

Sl No	Day/Date	Topics to be Covered	Pedagogy used	Hours
1	Day1	Introduction: Communication Network and services,	Chalk and Talk, ICT	1
2	Day2	Approaches to Network Design, Network Functions	Chalk and Talk, ICT	2
3	Day3	network design	Chalk and Talk, ICT	3
4	Day4	Network Topology	Chalk and Talk, ICT	4
5	Day5	Message ,packet and circuit Switching , Internet, Packet Switchi	Chalk and Talk, ICT	5
6	Day6	Key factors in Communication Network	Chalk and Talk, ICT	6
7	Day7	Evolution ; Layered Architecture and Applications – Examples (	Chalk and Talk, ICT	7
8	Day8	OSI Reference Model	Chalk and Talk, ICT	8
9	Day9	TCP/IP Model	Chalk and Talk, ICT	9
10	Day10	Telnet FTP and IP Utilities.	Chalk and Talk, ICT	10
11	Day11	Digital Transmission: Digital Representation of Information:	Chalk and Talk, ICT	11
12	Day12	Properties of digital transmission: Characterization of Communi	Chalk and Talk, ICT	12
13	Day13	Frequency Domain and Time Domain : Fundamental limits in D	Chalk and Talk, ICT	13
14	Day14	The Nyquist Signalling rate and Shannon channel capacity	Chalk and Talk, ICT	14

15	Day15	Line coding , Modems & digital Modulations	Chalk and Talk, ICT	15
16	Day16	Transmission Systems: properties of media and digital transmiss	Chalk and Talk, ICT	16
17	Day17	Twisted Pair , Coaxial Cable	Chalk and Talk, ICT	17
18	Day18	Optical Fibre, Radio Transmission Intrared Light	Chalk and Talk, ICT	18
19	Day19	Error detection and correction – Error detection Two – dimensi	Chalk and Talk, ICT	19
20	Day20	Polynomial code; standardized Polynomial codes	Chalk and Talk, ICT	20
21	Day21	Error detecting capability of a polynomial code,	Chalk and Talk, ICT	21
22	Day22	Multiplexing – frequency – Division , Time – Division	Chalk and Talk, ICT	22
23	Day23	SONET; Wavelength Division Multiplexing Circuit switches; T	Chalk and Talk, ICT	23
24	Day24	signalling Traffic and Overload control in Telephone networks -	Chalk and Talk, ICT	24
25	Day25	Routing Control, Overload controls Cellular Telephone Networ	Chalk and Talk, ICT	25
26	Day26	Peer –to-Peer Protocols	Chalk and Talk, ICT	26
27	Day27	Peer-to peer Protocols and service models	Chalk and Talk, ICT	27
28	Day28	ARQ Protocols stop and wait	Chalk and Talk, ICT	28
29	Day29	Go –back-N Selective Repeat	Chalk and Talk, ICT	29
30	Day30	Transmission efficiency of ARQ Protocols Other adaptation fun	Chalk and Talk, ICT	30
31	Day31	Sliding window flow control Timing Recovery in Synchronous	Chalk and Talk, ICT	31
32	Day32	Data Link Control, HDLC, PPP	Chalk and Talk, ICT	32
33	Day33	Statistical Multiplexing	Chalk and Talk, ICT	33
34	Day34	Local Area Networks and Medium access Control Protocols	Chalk and Talk, ICT	34
35	Day35	Multiple access communications; Local Area network – LAN St	Chalk and Talk, ICT	35
36	Day36	Logical link control layer, Random Access	Chalk and Talk, ICT	36
37	Day37	protocols ALOHA , Slotted ALOHA	Chalk and Talk, ICT	37
38	Day38	CSMA, CSMA/CD	Chalk and Talk, ICT	38
39	Day39	Scheduling approaches to medium access control – Reservation	Chalk and Talk, ICT	39
40	Day40	Token passing rings	Chalk and Talk, ICT	40
41	Day41	comparison of Random access & Scheduling access control	Chalk and Talk, ICT	41
42	Day42	Comparison of Radom access & SHEDULING MEDIUM acces	Chalk and Talk, ICT	42
43	Day43	Channelization – FDMA, TDMA, CDMA	Chalk and Talk, ICT	43
44	Day44	LAN Standard –Ethernet and IEF	Chalk and Talk, ICT	44
45	Day45	802.3 LAN Standard	Chalk and Talk, ICT	45

46	Day46	Token Ring and IEEE 8025 LAN standard	Chalk and Talk, ICT	46
47	Day47	FDDI, Wireless LAN's and IEEE 802.11 Standards	Chalk and Talk, ICT	47
48	Day48	LAN Bridges – Transparent Bridges , Source Routing Bridges	Chalk and Talk, ICT	48
49	Day49	Mixed – media Bridges. Packet Switching	Chalk and Talk, ICT	49
50	Day50	Networks :- Network services & Internal Network Operation	Chalk and Talk, ICT	50
51	Day51	Packet Network Topology; Datagrams & VIRTUAL circuits	Chalk and Talk, ICT	51
52	Day52	structure of switch/ Router, Connectionless packet switching	Chalk and Talk, ICT	52
53	Day53	Virtual – Circuit packet switching ; Overview of Routing and co	Chalk and Talk, ICT	53
54	Day54	packet networks – Routing algorithms classification ,	Chalk and Talk, ICT	54
55	Day55	Routing tables	Chalk and Talk, ICT	55
56	Day56	shortest path routing algorithms	Chalk and Talk, ICT	56
57	Day57	Flooding , Hierarchical routing	Chalk and Talk, ICT	57
58	Day58	Distance vector routing Link state routing	Chalk and Talk, ICT	58
59	Day59	Congestion control algorithms	Chalk and Talk, ICT	59

Pathi.V

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M.S.RAMAIAH COLLEGE OF ARTS SCIENCE AND COMMERCE

Academic Year 2021-2022

Name of the Faculty: Suma c

Course: Accounting and Financial Management

Class Strength: 78

Department: Computer Science

Course Code: BCA 403T

Semester: III BCA

CO1 Write down the classification and characteristics of History and Development of Acounting

CO2 Learn in details with application, if applicable, Financial Accounting Process

CO3 Specify the characteristics of Accounting for bills of Exchange

CO4 Understand the details of Preparation of Final Accounts

CO5 Learn in details with examples Accounting package like tally

Hours	Date of completion	Topics to be Covered	Pedagogy used
1	Day 1	**Introduction: History and Development of Accounting**	Chalk and Talk and ICT
2	Day 2	**Meaning Objectives and functions of Accounting**	Chalk and Talk and ICT
3	Day 3	**Book–keeping V/s Accounting –Users of accounting data**	Chalk and Talk and ICT
4	Day 4	**systems of book-keeping and accounting**	Chalk and Talk and ICT
5	Day 5	**Branches of accounting –advantages and limitations of accounting.**	Chalk and Talk and ICT
6	Day 6	**Accounting Concepts and conventions:**	Chalk and Talk and ICT
7	Day 7	**Meaning need and classification**	Chalk and Talk and ICT
8	Day 8	**Accounting standards –meaning, need**	Chalk and Talk and ICT
9	Day 9	**Classification of Indian accounting standards.**	Chalk and Talk and ICT
10	Day 10	**Accounting principles V/s Accounting standards.**	Chalk and Talk and ICT
11	Day 11	**Classification of accounting transaction and accounts,**	Chalk and Talk and ICT
12	Day 12	**Rules of debit and credit as per Double Entry System.**	Chalk and Talk and ICT
13	Day 13	**Journalisation and Ledger position**	Chalk and Talk and ICT
14	Day 14	**Preparation of different subsidiary books:**	Chalk and Talk and ICT
15	Day 15	**Purchase Day Book**	Chalk and Talk and ICT
16	Day 16	**Sales Day Book,**	Chalk and Talk and ICT
17	Day 17	**Purchase Returns Day Books,**	Chalk and Talk and ICT
18	Day 18	**Sales Returns Day Book**	Chalk and Talk and ICT

19	Day 19	**Cash Book.**	Chalk and Talk and ICT
20	Day 20	**Bank Reconciliation Statement: Meaning, Need,**	Chalk and Talk and ICT
21	Day 21	**Definition, preparation of BRS.**	Chalk and Talk and ICT
22	Day 22	**Accounting for bill of exchange: Meaning, Need, Definition,**	Chalk and Talk and ICT
23	Day 23	**Partice to Bill of Exchange, Types of Bills.**	Chalk and Talk and ICT
24	Day 24	**Accounts Procedure: Honour of the Bill**	Chalk and Talk and ICT
25	Day 25	**Dishonour of the Bill,**	Chalk and Talk and ICT
26	Day 26	**Endorsement, Discounting**	Chalk and Talk and ICT
27	Day 27	**Renewal of Bill**	Chalk and Talk and ICT
28	Day 28	**Bills for collection**	Chalk and Talk and ICT
29	Day 29	**Retirement of the Bill,**	Chalk and Talk and ICT
30	Day 30	**Accommodation Bills**	Chalk and Talk and ICT
31	Day 31	**Bill Receivable Book and Payable Book.**	Chalk and Talk and ICT
32	Day 32	**Preparation of Trial Balance:**	Chalk and Talk and ICT
33	Day 33	**Rectification of errors**	Chalk and Talk and ICT
34	Day 34	**journal Proper.**	Chalk and Talk and ICT
35	Day 35	**Final Accounts Meaning, need and classification**	Chalk and Talk and ICT
36	Day 36	**Preparation of Manufacturing account**	Chalk and Talk and ICT
37	Day 37	**Preparation of Trading Account**	Chalk and Talk and ICT
38	Day 38	**Preparation of Trading Account**	Chalk and Talk and ICT
39	Day 39	**Profit and loss account**	Chalk and Talk and ICT
40	Day 40	**Balance-Sheet of sale –traders**	Chalk and Talk and ICT
41	Day 41	**Balance sheet of partnership firms.**	Chalk and Talk and ICT
42	Day 42	Fundamentals of Tally.	Chalk and Talk and ICT
43	Day 43	Creating Accounting Masters in Tally.	Chalk and Talk and ICT
44	Day 44	Creating Inventory Masters in Tally.	Chalk and Talk and ICT
45	Day 45	Voucher Entry in Tally.	Chalk and Talk and ICT
46	Day 46	Generating Basic Reports in Tally.	Chalk and Talk and ICT
47	Day 47	Multilingual Capabilities.	Chalk and Talk and ICT
48	Day 48	Technological Advantages in Tally.ERP 9.	Chalk and Talk and ICT

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I		IBSC Open Elective	Integral calculus	14 Hrs.
Teaching Objective			Definite integrals and properties, computation of length of arc, area of plane, Surface area, volume in cartesian form.	
Content	7-1-22	Day 1	Recapitulation of Definite integrals.	01
	8-1-22	Day 2	Definite integral properties	01
	14-1-22	Day 3	problems on Definite integral	01
	15-1-22	Day 4	Computation of length of arc	01
Teaching Pedogogy	21-1-22	Day 5	problems on length of arc	01
	22-1-22	Day 6	problems on length in Cartesian form	01
Unit II	28-1-22	Day 7	Finding area of plane curves	01
Teaching Objective	29-1-22	Day 8	Problems on area in Cartesian form	01
Content	4-2-22	Day 9	Computation of Surface area	01
	11-2-22	Day 10	Problems on Surface area	01
	4-3-22	Day 11	Surface area in cartesian form	01
	4-3-22	Day 12	Volume of revolution in cartesian form	01
	5-3-22	Day 13	Problems on volume.	01
	7-3-22	Day 14	More problems on volume of revolution	01
Teaching Pedogogy			ICT, chalk & Talk, Youtube videos, PPT, Periodic evaluation through tests.	

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SEMESTER PLAN

Open elective sub

Topic	Date	Class	Contents	No of Hrs Planned
Unit I		I B.Sc open Elective.	Matrices	14 Hrs
Teaching Objective			To teach Rank of a matrix, homogeneous and Non-homogeneous system of linear eqn. eigen values and eigen vectors.	
Content	23/11/21	Day 1 19/1/22	Recapitulation of Symmetric and Skew symmetric matrices.	01 Hrs
	23/11/21	Day 2 19/1/22	Echelon form of a matrix	01
	24/11/21	Day 3 28/1/22	Rank of a matrix.	01
	26/11/21	Day 4 2/2/22	Rank by Normal form.	01
Teaching Pedogogy	1/12/21	Day 5 12/2/22	Existence of Trivial and Non-trivial solution of a systems of linear eqn.	01
Unit II	8/12/21	Day 6	problems on Homogeneous system	01
Teaching Objective	8/12/21	Day 7	Non homogeneous system and problems.	01
Content	15/12/21	Day 8	Eigen values and problems.	01
	15/12/21	Day 9	Eigen vectors and problems.	01
	29/12/21	Day 10	problems on Eigen values and eigen vectors.	01
	29/12/21	Day 11	problems on Cayley Hamilton Theorem.	01
	30/12/21	Day 12	problems on Cayley Hamilton Theorem.	01
	5/1/22	Day 13	To find A^{-1} by CHT.	01
	12/1/22	Day 14	Finding A by Cayley Hamilton Theorem.	01
Teaching Pedogogy			Chalk and Talk & ICT	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit 02			Graph Theory	12 Hrs
Teaching Objective			To teach basic operations on graphs trees, paths, Directed graphs Eulerian and Hamilton directed graphs.	
Content	31/1/22	Day 1 31/1/22	Introduction and representation of graphs	01 Hrs
	7/2/22	Day 2	Types of graphs and graph Isomorphism	01
	14/2/22	Day 3	operations on graphs	01
	2/3/22	Day 4	Introduction and types of trees.	01
Teaching Pedogogy	2/3/22	Day 5	Applications of trees.	01
	3/3/22	Day 6	prim's and kruskal's Algorithm	01
Unit II	4/3/22	Day 7	Euler and Hamilton paths.	01
Teaching Objective	4/3/22	Day 8	planar graphs and directed graphs	01
Content	5/3/22	Day 9	Fundamentials of diagraphs	01
	7/3/22	Day 10	Computer Recognition - Zero-one matrices and directed graphs.	01
	7/3/22	Day 11	out-degree, in-degree, connectivity, orientation of directed graphs.	01
	8/3/22	Day 12 9/3/22	Eulerian and Hamilton directed graphs.	01
Teaching Pedogogy			Chalk and talk & ICT	

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SEMESTER PLAN

Topic	Date	Class	Contents	No of Hrs Planned
Unit I				
Teaching Objective	09-2-22	Day 8	Tower of Hanoi problem	01
	16-2-22	Day 9	Divide and conquer relations	01
	25-2-22	Day 10	Def^n and types of relations	01
Content	2-3-22	Day 11	Representing relations using matrices and digraphs	01
	4-3-22	Day 12	Problems on relations	01
Teaching Pedogogy			ICT, Online videos, Assignment, chalk and talk	
Unit II				
Teaching Objective				
Content				
Teaching Pedogogy				

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