MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(An Autonomous College)

Affiliated to Periyar University, Salem | Accredited by **NAAC** with '**A**' Grade Recognized by **UGC** under Section 2(f) & 12 (B)



DEGREE OF BACHELOR OF SCIENCE

Learning Outcomes - Based Curriculum Framework - Choice Based Credit System

Syllabus for B.Sc.,Electronics and Communication (Semester Pattern)

(For Candidates admitted from the academic year 2023-2024 and onwards)





CONTENT	PAGENO
VISION AND MISSION	2
PREAMBLE	3
PROGRAMME LEARNING OUTCOME	3
NATURE AND EXTENT OF THE PROGRAMME	3
AIM OF THE PROGRAMME	4
GRADUATE ATTRIBUTES	4
PROGRAMME EDUCATIONAL OBJECTIVE(PEO)	5
PROGRAMME OUTCOMES (POs)	5
PROGRAMME SPECIFIC OUTCOMES(PSOs)	5
REGULATIONS (2023-24)	6
SCHEME OF EXAMINATIONS -LOCF-CBCS PATTERN	20
SYLLABUS	25





Regulation and Syllabus for B.Sc., Electronics and Communication (*With effect from the Academic Year 2023-24*)

Vision

To redefine the scope of higher education by infusing into each of our pursuits, initiatives that will encourage intellectual, emotional, social and spiritual growth, there by nurturing a generation of committed, Knowledgeable and socially responsible citizens.

Mission:

*To Ensure State of the world learning experience

*To Espouse value based Education

*To Empower rural education

*To Instill the sprite of entrepreneurship and enterprise

*To create a resource pool of socially responsible world citizens

OUALITY POLICY

To Seek-To Strive-To Achieve greater heights in Arts and Science, Engineering, Technological and Management Education without compromising on the Quality of Education

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Vision:

To provide education that gives self-employment and builds a strong Academic industry.

Mission:

*To provide value and need based education





PREAMBLE

The Bachelor of Science in Electronics and Communication is a dynamic and forward-looking program designed to equip students with the fundamental knowledge and practical skills required to excel in the rapidly evolving fields of electronics and communication technology. This program offers a comprehensive curriculum that integrates the core principles of electronics, including circuit design, digital and analog systems, with advanced communication technologies such as wireless communication, optical communication and signal processing. The curriculum is meticulously structured to provide a balanced education, encompassing theoretical learning, handson laboratory experience, and real-world applications. Students are exposed to cutting-edge technologies and contemporary industry practices, preparing them for a wide range of career opportunities in telecommunications, information technology, embedded systems, and more. The program emphasizes innovation, critical thinking, and problem-solving, fostering a research-oriented mindset and a commitment to lifelong learning. Ethical responsibility and professional conduct are integral components, ensuring that graduates are not only technically proficient but also equipped to make positive contributions to society. By nurturing a deep understanding of both the fundamental and applied aspects of electronics and communication, The syllabi for the three-year B.Sc. degree course in Electronics and Communication are framed in such a way that the students at the end of the course, can be adept at Electronic techniques for pursuing higher studies and aims to produce graduates who are ready to lead, innovate, and excel in an increasingly interconnected and technology-driven world.

PROGRAMME LEARNING OUTCOME

NATURE AND EXTENT OF THE PROGRAMME

The undergraduate programme Electronics & Communication is the first level of college or university degree in the country as in several other parts of the world. After obtaining this degree, an Electronics engineer may enter into the job market or opt for undertaking further higher studies in the subject. After graduation the students may join industry, academia, or Telecom Sector and play their role as Electronics technician in a useful manner contributing their knowledge to the welfare of the society. Thus the undergraduate level degree in Electronics & Communication must prepare the students for all these objectives. The LOCF curriculum has been developed encompassing all the diversified aspects of Electronics & Communication y with reasonable depth of knowledge and skills as to specialize them in the various aspects of the subject. It also equips them with the expected professional expertise.





AIM OF THE PROGRAMME

The aim of the undergraduate degree in Electronics & Communication is to make students knowledgeable about the various basic concepts in a wide ranging context which involve the use of knowledge and skills of Electronics & Communication. Their understanding, knowledge and skills in Electronics and Communication needs to be developed through a thorough teaching learning process in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts

GRADUATE ATTRIBUTES

Graduates of the Bachelor of Science in Electronics and Communication program will emerge as well-rounded professionals equipped with a comprehensive set of skills and attributes essential for success in the dynamic field of electronics and communication. They will possess a robust understanding of fundamental and advanced principles in electronics, enabling them to design, analyze, and optimize complex electronic systems and communication networks. Graduates will demonstrate practical proficiency through extensive hands-on experience with modern tools, instruments, and technologies. They will be skilled in problem-solving, critical thinking, and innovative design, allowing them to tackle diverse challenges and contribute to technological advancements.

Effective communication skills will enable them to articulate technical concepts clearly and collaborate efficiently in multidisciplinary teams. Ethical responsibility and professional conduct will guide their decision-making processes, ensuring they adhere to industry standards and contribute positively to society. Graduates will exhibit adaptability and a commitment to lifelong learning, staying abreast of emerging technologies and continually enhancing their expertise. They will understand the global and societal impacts of their work, striving for sustainable and socially responsible solutions. With a strong foundation in research and a mindset geared towards innovation, graduates will be prepared to lead and excel in various roles within the Electronics and Communication sectors.

GA1 Analytical Reasoning	GA5 Leadership Quality
GA2 Critical Thinking	GA6 Teamwork
GA3 Problem Solving Skills	GA7 Lifelong Learning

GA4 Communication Skills





PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

- PEO1: Graduates will be able to promote learning environment to meet the industry expectation
- PEO2: Graduates will be incorporated the critical thinking with Good Communication and Leader ship skills to become a self-employed
- PEO3: Graduates will be up hold the human values and environmental sustenance for the better men to the society.

PROGRAMME OUTCOMES (POs)

- PO1: Graduates will acquire dynamic skills through proper perception of the course Objectives that leads to scientific and analytical comprehension of the concepts.
- PO2: Graduates will focus on sustainable goals that might bring about spherical developments
- PO3: Graduates will infuse a spirit converging on bricking a team work, interpersonal and administrative skills to think critically and execute effectively
- PO4: Graduates will apply reasoning appropriately to scale the humps in learning and solute them to the core.
- PO5: Graduates will engage the skills obtained in independent and collaborative Learning as a perennial process.

PROGRAMME SPECIFIC OUTCOMES(PSOs)

- PSO-1: Apply proficiency in use of software and hardware required to practice electronics and communication profession.
- PSO-2: Graduates will be able to apply fundamentals of electronics in various aspects of analog and digital systems.
- PSO-3: Design and analyze specific engineering problems of communication, electronic circuits, computer programming, embedded systems and VLSI design and semiconductor technology by applying the knowledge of basic sciences, engineering mathematics and engineering fundamentals.





- PSO-4: Graduates will be able to communicate effectively with excellent interpersonal skills and demonstrate the practice of professional ethics for societal benefit.
- PSO-5: Graduates will be able to apply fundamentals of electronics in various domains of analog and digital systems and also use embedded system concepts for developing IoT application

REGULATIONS (2023-2024)

1. DURATION OF THE PROGRAME

1.1. Three years(six semesters)

1.2. Each academic year shall be divided into two semesters. The odd semesters shall consist of the period from June to November of each year and the even semesters from December to May of each year.

1.3. There shall be not less than 90 working days for each semester.

2. ELIGIBILITY FOR ADMISSION

2.1. Candidate for admission to the first year of B.Sc. Degree Course in Electronics and Communication shall be required to have passed the Higher Secondary Examination with Any + 2 Stream as per norms set by the Government of Tamilnadu or an Examination Accepted as equivalent there to by the syndicate.

3. CREDIT REQUIRMENTS AND ELIGIBILITY FORAWARD OF DEGREE

3.1. A Candidate shall be eligible for the award of the Degree only if he/she has under gone the prescribed course of study in a College affiliated to the University for a period of not less than three academic years and passed the examinations of all the Six Semesters prescribed earning a minimum of 140 credits as per the distribution given in Regulation for Part I, II, III, IV & V and also fulfilled such other conditions as have been prescribed there of.





4. COURSE OF STUDY, CREDITS AND SCHEME OF EXAMINATION

The Course Components and Credit Distribution shall consist of the following:

(Minimum Number of Credits to be obtained)

Part Wise Distribution	Study Components	Credit Distribution
PARTI	Tamil or Other Languages	12
PARTII	English	12
PARTIII	Core, Allied, Elective and Project Courses	91
PARTIV	i. Basic Tamil/Advanced Tamil/NME	04
	ii. Soft Skill Courses/SBEC	10
	iii. Environmental Studies	02
	iv. Value Education	02
	v. Internship	02
	vi. Foundation Course	02
	vii. Professional Competency Skills	02
PARTV	Extension Activity	01
Total Credits	·	140





4.2 DETAILS OF COURSE OF STUDY OF PARTS I-V

4.2.1 PARTI: Tamil and Other Languages Hindi or French at the option of candidates and according to the syllabus and text-books prescribed from time to time:

4.2.2 PART II: English: According to the syllabus and text-books prescribed from time to time

4.2.3 PART III: Core, Allied Project and Elective Courses: As prescribed by the concerned Board of Studies

4.2.4 PART IV:

i. Basic Tamil/Advanced Tamil/NME:

- a. Students who have not studied Tamil up to XII STD and have taken any Language other than Tamil in Part I shall take Basic Tamil comprising of Two Courses (level will be at 6thStandard).
- **b.** Students who have studied Tamil up to XII STD and have taken any Language other than Tamil in Part I shall take Advanced Tamil comprising of Two Courses.
- **c.** Students who have studied Tamil up to XII STD and also have taken Tamil in Part–I shall take Non-Major Elective comprising of Two Courses.
- i. Soft Skill Courses/SBEC
- ii. Environmental Studies
- iii. Value Education
- iv. Internship
- v. Foundation Course
- vi. Professional Competency Skills (Online)

4.2.5 PARTV: Extension Activity:

Students shall be awarded a maximum of 1 Credit for Compulsory Extension Service. All the Students shall have to enroll for NSS /NCC/ NSO (Sports & Games) Retract / Youth Red Cross or any other Service Organizations in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College before 31st March in a year. If a student lacks40 hour's attendance in the first year, he or she shall have to compensate the same during the sub sequent years.





Those students who complete minimum attendance of 40 hours in one year will get 'half-a- credit and those who complete the attendance of 80 or more hours in Two Years will get 'one credit'. Literacy and Population Education and Field Work shall be compulsory components in the above extension service activities

4.3. Inclusion of the Massive Open Online Courses (MOOCs) available on SWAYAM and NPTEL

4.3.1 Students can choose the MOOC Course Available on SWAYAM and NPTEL under Core, Elective or Soft skill category. He/ she will be awarded degree only after producing valid certificate of the MOOC course for credit Mobility

5. REQUIREMENTS FOR PROCEEDING TO SUBSEQUENT SEMESTER

5.1 Eligibility: Students shall be eligible to go to subsequent semester only if they earn sufficient attendance as prescribed by the Periyar University.

5.2. Attendance: All Students must earn 75% and above of attendance for appearing for the End Semester Examination. (Theory/Practical)

5.3. Condonation of shortage of attendance: If a Student fails to earn the minimum attendance (Percentage stipulated), the Principals shall condone the shortage of attendance up to a maximum limit of 10% (i.e. between 65% and above and less than75%) after collecting the prescribed fee for Theory/Practical examination separately, towards the condonation of shortage of attendance. Such fees collected and should be remitted to the University.

5.4. Non-eligibility for condonation of shortage of attendance: Students who have secured less than 65% but more than 50% of attendance are NOTELIGIBLE for condonation of shortage of attendance and such Students will not be permitted to appear for the regular examination, but will be allowed to proceed to the next year/next semester of the program and they may be permitted to take next University examination by paying the prescribed condonation fee

5.5. Detained students for want of attendance: Students who have earned less than 50% of attendance shall not be permitted to proceed to then next semester and to complete the Program of study. Such Students shall have to repeat the semester, which they have missed by rejoining after completion of final semester of the course, by paying the fee for the break of study as prescribed by the College from time to time.





5.6. Condonation of shortage of attendance for married women students: Inrespect of married women students undergoing UG programs, the minimum attendance for condonation (Theory/Practical) shall be relaxed and prescribed as 55% instead of 65% if they conceive during their academic career. Medical certificate from the Doctor (D.G.O) from the Government Hospital and the prescribed fee along with attendance details shall be forwarded to the college to consider the condonation of attendance mentioning the category

5.7. Zero Percent (0%) Attendance: The Students, who have earned 0% of attendance, have to repeat the program (by rejoining) without proceeding to succeeding semester and they have to obtain prior permission from the College/University immediately to rejoin the program.

5.8.1 Transfer of Students is permitted from one Institution to another Institution for the same program with same nomenclature.

Provided, there is a vacancy in the respective program of Study in the Institution where the transfer is requested.

Provided the Student should have passed all the courses in the Institution from where the transfer is requested.

5.8.2 The marks obtained in the courses will be converted and grades will be assigned as per the College norms.

5.8.3 The transfer students are eligible for classification.

5.8.4 The transfer students are not eligible for Ranking, Prizes and Medals.

5.8.5 Students who want to go to foreign Universities up to two semesters or Project Work with the prior approval of the Departmental/College Committee are allowed to get transfer of credits and marks which will be converted in to Grades as per the University norms and are eligible to get CGPA and Classification; they are not eligible for Ranking, Prizes and Medals.

5.9 Students are exempted from attendance requirements for online courses of the College and MOOC's.

6. EXAMINATION AND EVALUATION

6.1 Register for all subjects: Students shall be permitted to proceed from the First Semester up to Final Semester irrespective of their failure in any of the Semester Examination. For this purpose, Students shall register for all the arrear subjects of earlier semesters along with the current (subsequent) Semester Subjects.





6.2 Marks for Internal and End Semester Examinations for PARTI, II, III, and IV

Category	Theory	Practical
Internal Assessment	25	40
End semester Examination	75	60

6.3 Procedure for Awarding Internal Marks Internal Examination Marks-Theory

Components	Marks
CIA I & II	15
Attendance	5
Assignment/Quiz	5
Total	25

6.4 Awarding Marks for Attendance (out of 5)

Percentage of Attendance	Marks
Below 60%	0 marks
60% to 75%	3 marks
75% to 90%	4 marks
Above 90%	5 marks

6.5 Components for Practical CIA.

Components	Marks
CIA-I	15
CIA- II	15
Observation Note	05
Attendance	5
Total	40





6.6 Components for Practical ESE.

Components	Marks
Completion of Experiments	50
Record	05
Viva voce	05
Total	60

6.7 Guidelines for Value Education Yoga and Environmental Studies (Part IV)

6.7.1. The Course Value Education Yoga is to be treated as 100% CIA course which is offered in V Semester for I year UG students.

6.7.2. The Course Environmental Studies is to be treated as 100% CIA course which is offered in IV Semester for I year UG students.

6.7.3 Total Marks for the Course =100

Components	Marks
Two Tests(2x30)	60
Field visit and report	20
(10+10)	
Two assignments(2x10)	20
Total	100

The passing minimum for this course is 40%

6.7.3 Incase, the candidate fails to secure 40% passing minimum, he/she may

have to reappear for the same in the subsequent odd/even semesters.





6.8 Internship/Industrial Training, Mini Project and Major Project Work

Internship/Industria	alTraining	MiniProject	Major Project Work		ſk
Components	Marks	Marks	Components		Marks
CIA*2			CIA		
Work Diary	25	-	a)Attendance	10 Marks	
Report	50	50	b) Review /Work Diary* ¹	20 Marks	
Viva–voce	25	50		SUIVIAIKS	40
Examination					
Total	100	100	ESE* ² a) Final Report 40 Marks b)Viva-voce 20 Marks		60
			Total		100

*1.Review is for Individual Project and Work Diary is for Group Projects (Group consisting of minimum 3 and maximum 5)

*2 Evaluation of report and conduct of viva voce will be done jointly by Internal and External Examiners

6.9 Guidelines for Professional Competency Skill-Online Mode (Part IV)- Online Exam 3 hours

Components	Marks
100 Objective Type	
Questions 100*1=100Marks	100

Objective type Questions from Question Bank.

- The passing minimum for this paper is 40%
- Incase, the candidate fails to secure 40% passing minimum, he/she may have to reappear for the same in the subsequent semesters.

Objective type Questions from Question Bank.





- The passing minimum for this paper is 40%
- Incase, the candidate fails to secure 40% passing minimum, he/she may have to reappear for the same in the subsequent semesters.

QUESTION PAPER PATTERN FOR CIAI, II AND ESE		
(3HOURS)	MAXIMUM:75Marks	
SECTION-A (Objective Type) Answer ALL Questions	(10x1=10marks)	
ALL Questions Carry EQUAL Marks		
SECTION-B(Either or Type) Answer ALL Questions	(5x5=25marks)	
ALL Questions Carry EQUAL Marks		
SECTION-C (Either or Type) Answer ALL Questions	(5x8=40marks)	
ALL Questions Carry EQUAL Marks		
(Syllabus for CIA-I2.5 Unit, Syllabus for CIA-II All 5Unit)		

6.10 PASSING MINIMUM

6.10.1 There shall be no passing minimum for Internal.

6.10.2 For external examination, passing minimum shall be40% [Forty Percentage] of the maximum marks prescribed for the course for each Course/Practical/Project and Viva-Voce.

6.10.3 In the aggregate [External/Internal] the passing minimum shall be of 40%.

6.10.4 He/ She shall be declared to have passed the whole examination, if he/ she passes in all the Courses and Practical wherever prescribed as per the scheme of the examinations by earning 140 CREDITS in Part I, II, III, IV& V. He/she shall also fulfill the extension activities prescribed earning a minimum of 1 credit to qualify for the Degree.

6.11 SUPPLIMENTARY EXAMINATION:

Supplementary Examinations is conducted for the students who appeared in the final semester examinations. Eligible criteria for appearing in the Supplementary Examinations are as follows:





6.11.1 Eligibility: A Student who is having arrear of only one theory course in any of the semester or two theory course in the Final semester of the UG degree programme alone is eligible for Supplementary Examinations.

6.11.2 Non-eligibility for those completed the program: Students who have completed their Program duration but having arrears are not eligible to appear for Supplementary Examinations.

6.12 RETOTALLING, REVALUATION AND PHOTOCOPY OF THE ANSWER SCRIPTS:

6.12.1 Re-totaling: All UG Students who appeared for their Semester Examinations are eligible for applying for re-totaling of their answer scripts.

6.12.2 Revaluation: All current batch Students who have appeared for their Semester Examinations are eligible for Revaluation of their answer scripts. Passed out candidates are not eligible for Revaluation.

6.12.3 Photo copy of the answer scripts: Students who have applied for revaluation can apply for the Photocopy of answer scripts by paying prescribed fee.

RANGE OF MARKS	GRADE POINTS	LETTERGRADE	DESCRIPTION
90-100	9.0-10.0	0	Outstanding
80-89	8.0-8.9	D+	Excellent
75-79	7.5-7.9	D	Distinction
70-74	7.0-7.4	A+	Very Good
60-69	6.0-6.9	А	Good
50-59	5.0-5.9	В	Average
40-49	4.0-4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

7. CLASSIFICATION OF SUCCESSFUL STUDENTS





7.1 Computation of Grade Point Average (GPA) in a Semester, Cumulative Grade Point Average (CGPA) and Classification

GPA for a Semester: $=\sum iCiGi, \sum iCi$

That is, GPA is the sum of the multiplication of grade points by the credits of the courses divided by the sum of the credits of the courses in a semester.

CGPA for the entire programme: = $\sum n \sum iCniGni$, $\sum n \sum iCni$ That is, CGPA is the sum of the multiplication of grade points by the credits of the entire programme divided by the sum of the credits of the courses of the entire programme

Where,

Ci=Credits earned for course in any semester,

Gi=Grade Points obtained for course in any semester=Semester in which such courses were credited

7.2 Letter Grade and Classification

CGPA	GRADE	CLASSIFICATIONOFFINALRESULT
9.5-10.0	0+	First Class-Exemplary*
9.0 and above but below9.5	0	
8.5 and above but below9.0	D++	
8.0 and above but below8.5	D+	First Class with Distinction*
7.5 and above but below8.0	and above but below8.0 D	
7.0 and above but below7.5	A++	
6.5 and above but below7.0	A+	First Class
6.0and above but below6.5	Α	
5.5 and above but below6.0	B +	Second Class
5.0 and above but below5.5	В	
4.5 and above but below5.0	C+	Third Class
4.0 and above but below4.5	С	
0.0 and above but below4.0	U	Re-appear

*The Students who have passed in the first appearance and within the prescribed semester of the UG Programme (Major, Allied and Elective courses only) are eligible. 8. RANKING

Students who pass all the examinations prescribed for the Program in the FIRST APPEARANCE ITSELF ALONE are eligible for Ranking I, II and III.

9. MAXIMUM PERIOD FOR COMPLETION OF THE PROGRAM TO QUALIFY FOR A DEGREE

9.1 A Student who for whatever reasons is not able to complete the program within the normal period (N) or the Minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span=N+2 years for the completion of programme.)



B.Sc., Electronics and Communication abstract under LOCF-CBCS Pattern with effect from 2023-2024 Onwards



Structure of Credit Distribution as per the TANSCHE / UGC Guidelines

			Sem	Ι	Sem	Π	Sem]	Ш	Sem l	[V	Sem	V	Sem	VI	aper	edit.
S.No.	Study Components	Part	No.of Paper	Credit	No.of P:	Total Cr										
1	LANGUAGE - I	Ι	1	3	1	3	1	3	1	3					4	12
2	LANGUAGE - II	II	1	3	1	3	1	3	1	3					4	12
3	DISCIPLINE SPECIFIC COURSES (DSC) - THEORY	III	1	5	1	5	1	5	1	4	2	8	2	8	8	35
4	DSC - PRACTICAL	III	1	3	1	3	1	3	1	3	2	6	1	3	7	21
5	GENERIC ELECTIVE COURSES (GEC) - THEORY	III	1	3	1	3	1	3	1	3					4	12
6	GEC PRACTICAL	III					1	2	1	2					2	4
7	DISCIPLINE SPECIFIC ELECTIVE COURSES(DSE)	III									2	8	2	8	4	16
8	PROJECT WORK	III											1	3	1	3
9	INTERNSHIP	IV									1	2			1	2
10	ONLINE - COMPETITIVE EXAMINATION	IV											1	2	1	2
11	FOUNDATION COURSE	IV	1	2											1	2
12	SKILL ENHANCEMENT COURSES (SEC)-SBEC	IV			1	2	1	2	1	2	1	2	1	2	5	10

13	NON MAJOR ELECTIVE COURSES(NMEC)	IV	1	2	1	2									2	4
14	ABILITY ENHANCEMENT COMPULSORY COURSES(AECC)- EVS	IV							1	2					1	2
15	ABILITY ENHANCEMENT COMPULSORY COURSES(AECC)- VALUE EDUCATION - YOGA	IV									1	2			1	2
16	EXTENSION ACTIVITY	V											1	1	1	1
	Cumulative Credits		7	21	7	21	7	21	8	22	9	28	9	27	47	140

Total No.of Subjects	47
Marks	4600

PART	No. of Credits
PART - I	12
PART - II	12
PART - III	91
PART - IV	24
PART - V	1
Grand Total	140
Extra Credit	4
	144





[®] MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE(Autonomous) -RASIPRAM - 637 408

Scheme of Examinations LOCF-CBCS Pattern as per TANSCHE Norms (for the Students Admitted from the Academic Year:2023-2024 Onwards) Programme : B.Sc., Electronics and Communication

S.No.	ART	STUDY	COURSE	E TITLE OF THE Hr		/w	EDIT	MAX.MARKS		
	Ρź	COMPONENTS	CODE	COURSE	Lect	Lab	CRI POI	CIA	ESE	TOTAL
				SEMESTER - I						
1	Ι	LANGUAGE-I	23M1UFTA01	TAMIL-I	6	-	3	25	75	100
2	II	LANGUAGE-II	23M1UFEN01	ENGLISH-I	6	-	3	25	75	100
3	111	DSC THEORY-I	23M1UELC01	FUNDAMENTALS OF ELECTRONICS	5	-	5	25	75	100
4	111	DSC PRACTICAL-I	23M1UELP01	PRACTICAL: BASIC ELECTRONICS	-	5	3	40	60	100
5		GEC THEORY -I	23M1UMAA03	ALLIED:DISCRETE MATHEMATICS - I	4	-	3	25	75	100
6	IV	NMEC -I		NMEC -I	2	-	2	25	75	100
7	IV	FC THEORY-1	23M1UELFC1	APPLIED ELECTRIC CIRCUITS	2	-	2	25	75	100
				TOTAL		5	21	190	510	700
				SEMESTER - II						
1	I	LANGUAGE-I	23M2UFTA02	TAMIL-II	6	-	3	25	75	100
2	II	LANGUAGE-II	23M2UFEN02	ENGLISH-II	6	-	3	25	75	100
3	111	DSC THEORY- II	23M2UELC02	APPLIED DIGITAL ELECTRONICS	5	-	5	25	75	100
4	111	DSC PRACTICAL-II	23M2UELP02	PRACTICAL: DIGITAL ELECTRONICS		5	3	40	60	100
5		GEC THEORY -II	23M2UMAA04	DISCRETE MATHEMATICS - II	4	-	3	25	75	100
6	IV	NMEC -II		NMEC -II	2	-	2	25	75	100
7	IV	SEC-I	23M2UELS01	POWER ELECTRONICS	2	-	2	25	75	100
				TOTAL	25	5	21	190	510	700

				SEMESTER - III						
1	I	LANGUAGE-I	23M3UFTA03	TAMIL-III	6	-	3	25	75	100
2	11	LANGUAGE-II	23M3UFEN03	ENGLISH - III	6	-	3	25	75	100
3	111	DSC THEORY-III	23M3UELC03	ELECTRONIC CIRCUITS		-	5	25	75	100
4	111	DSC PRACTICAL- III	23M3UELP03	PRACTICAL : ELECTRONIC CIRCUITS	-	4	3	40	60	100
5	111	GEC THEORY - III	23M3UCSA02	C PROGRAMMING	4	-	3	25	75	100
6	111	GEC PRACTICAL I	23M3UCSAP2	PRACTICAL : C PROGRAMMING		2	2	40	60	100
7	IV	SEC-II	23M3UELS02	8051 MICROCONTROLLER AND ITS APPLICATIONS	2	-	2	25	75	100
				TOTAL	24	6	21	205	495	700
				SEMESTER - IV				•		
1	I	LANGUAGE-I	23M4UFTA04	TAMIL-IV	6	-	3	25	75	100
2	П	LANGUAGE-II	23M4UFEN04	ENGLISH - IV	6	-	3	25	75	100
3	111	DSC THEORY-IV	23M4UELC04	PRINCIPLES OF COMMUNICATION SYSTEMS	5	-	4	25	75	100
4	111	DSC PRACTICAL- IV	23M4UELP04	PRACTICAL : COMMUNICATION SYSTEMS	-	3	3	40	60	100
5	111	GEC THEORY - IV	23M4UCSAP4	ALLIED: PYTHON PROGRAMMING	4	-	3	25	75	100
6	111	GEC PRACTICAL -II	23M4UCSAP3	PRACTICAL : PYTHON PROGRAMMING	-	2	2	40	60	100
7	IV	SEC-III	23M4UELS03	MODERN ELECTRONIC MEASUREMENTS AND INSTRUMENTS	4	-	2	25	75	100
8	IV	AECC- ENVIRONMENTAL STUDIES (EVS)*	23M4UEVS01	ENVIRONMENTAL STUDIES (EVS)		-	2	100	-	100
		* Self Study		TOTAL	25	5	22	305	495	800

	SEMESTER - V												
1	111	DSC THEORY-V	23M5UELC05	LINEAR INTEGRATED CIRCUITS AND ITS APPLICATIONS	5	-	4	25	75	100			
2	111	DSC THEORY-VI	23M5UELC06	EMBEDDED SYSTEMS AND PIC MICROCONTROLLER	5	-	4	25	75	100			
3	111	DSC PRACTICAL-V	23M5UELP05	PRACTICAL : LINEAR INTEGRATED CIRCUITS	-	3	3	40	60	100			
4	111	DSC PRACTICAL-VI	23M5UELP06	PRACTICAL: EMBEDDED SYSTEMS	-	3	3	40	60	100			
5	111	DSE THEORY - I		ELECTIVE -I	5	-	4	25	75	100			
6	111	DSE THEORY - II		ELECTIVE-II	5	-	4	25	75	100			
7	IV	SEC-IV	23M5UELS04	COMPETITIVE SKILS	2	-	2	25	75	100			
8	IV	AECC-VALUE EDUCATION	23M5UVED01	YOGA	2	-	2	100	-	100			
9	IV	INTERNSHIP	23M5UELIS1	INTERNSHIP	-	-	2	100	-	100			
				TOTAL	24	6	28	405	495	900			
				SEMESTER - VI									
1	111	DSC THEORY-VII	23M6UELC07	PCB DESIGN AND FABRICATION	5	-	4	25	75	100			
2	111	DSC THEORY- VIII	23M6UELC08	VLSI DESIGN AND VHDL PROGRAMMING	5	-	4	25	75	100			
3	111	DSC PRACTICAL-VI	23M6UELP06	PRACTICAL : VHDL PROGRAMMING	-	3	3	40	60	100			

4	111	DSE THEORY - III		ELECTIVE-III	5	-	4	25	75	100
5	111	DSE THEORY - IV		ELECTIVE-IV	5	-	4	25	75	100
6	111	PROJECT WORK	23M6UELPR1	PROJECT WORK		3	3	25	75	100
7	IV	SEC-V	23M4UELS05	LIFE AND ENTREPRENUER DEVELOPMENT SKILLS	2	-	2	25	75	100
8	IV	PROFESSIONAL COMPETENCY SKILLS	23M6UELOE1	ELECTRONICS AND COMMUNICATION FOR COMPETITIVE EXAMINATION	2		2	100	-	100
9	v	EXTENSION ACTIVITY	23M6UEXA01	EXTENSION ACTIVITY	-	-	1	-	-	-
				TOTAL	24	6	27	290	510	800
				OVERALL TOTAL	147	33	140	1585	3015	4600
10		EXTRA CREDIT COURSE		MOOC Courses offered in SWAYAM / NPTEL	-	-	2	-	-	-
11		VALUE ADDED		VALUE ADDED COURSE	-	-	2	-	-	-

HOD

MEMBER SECRETARY ACADEMIC COUNCIL PRINCIPAL





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

B.ScEl	ectronics & Communicat	ronies & Communication Syllabus LOCF-CBCS with effect from 2023-2024 OnwardsCourse TitleCourse TypeSem.HoursLTPCUNDAMENTALS OF ELECTRONICSDSC THEORY-II555To enable the students to understand and gain the knowledge on Basic Electronics devices.Course ContentKnowledge LevelsSessionsemiconductors and PN Junction Diode: Structure of an Atom - Atomic umber - Valence Electrons - Bonding in Conductors - Insulators - emiconductor - Conductor - Intrinsic Semiconductors - Extrinsic emiconductor - Doping - P Type Semiconductor - N type Semiconductor- ormation for PN Junction Diode - Characteristics - Drift urrent and Diffusion Current- Applications of PN junction Diode. pecial Diodes: Zener Diode - Varactor Diode - Characteristics - Drift urrent and Diffusion Current- Applications of PN and PNP Transistor - onstruction - Characteristics - Applications - Breakdown - Zener diode as a blage regulator.K311JT and Biasing: Introduction to Bipolar Junction Transistor - onstruction - Transistor Biasing - Operation of NPN and PNP Transistor - onstruction - Input Characteristics - Output haracteristics - Comparison - Bias Stability - and Line Method of Biasing: Fixed Bias - Collector to Base Bias - oltage Divider Bias - Bias Compensation - Thermal Runaway - Heat nk.K412If the Method of Biasing: Fixed Bias - Collector to Base Bias - oltage Divider Bias - Bias Compensation - Thermal Runaway - Heat nk.K213										
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С				
23M1UELC01	FUNDAMENTALS OF ELECTRONICS	DSC THEORY-I	Ι	5	5	-	-	5				
Objective	To enable the stud	lents to understand a	nd gain t	the knowledge of	on Basi	e Elec	tronics	devices.				
Unit		Course Content	ţ			Kno L	owledge evels	^e Sessions				
I	Semiconductors and PN Number - Valence Elec Semiconductors - Energy Semiconductor - Cond Semiconductor - Doping Formation for PN Junction Current and Diffusion Cu	N Junction Diode: S etrons - Bonding in y Band Structure ar uctor - Intrinsic S - P Type Semicondu on – PN Junction D urrent- Applications c	tructure 1 Condu 2 Condu 2 Condu 2 Conductor 2 Condu	of an Atom - A actors - Insula uction in Insula ductors – Ex type Semicond Characteristics action Diode.	Atomic tors – ator – trinsic luctor- - Drift		K2	12				
п	Special Diodes: Zener D Diode - Impatt Diode Operation – Characteristi voltage regulator.	Special Diodes: Zener Diode - Varactor Diode- Shcottkey Diode - Tunne Diode - Impatt Diode - PIN Diode - PNPN Diode Construction - Operation – Characteristics – Applications – Breakdown – Zener diode as a voltage regulator.										
Ш	BJT and Biasing: Introd Construction - Transistor CB, CE and CC Configur Characteristics - Transfer Load Line Method of Bi a Voltage Divider Bias – B Sink.	uction to Bipolar Jun Biasing - Operation ration – Input Charac Characteristics - Co asing: Fixed Bias - C ias Compensation - T	ection Tr of NPN teristics mparison Collector Fhermal	ansistor – and PNP Trans – Output n - Bias Stabilit to Base Bias - Runaway – Hea	istor - y - at		K4	12				
IV	Field Effect Transistors and UJT: JFET: Introduction to FET - Types - Construction – Operation - Characteristics of JFET - Applications of JFET - JFET as a Voltage Variable Resistor – Comparison of FET and BJT. MOSFET: Construction – Operation - Characteristics of MOSFET - I Applications of MOSFET – Comparison of E-MOSFET and DE_MOSFET.UJT: Construction – Operation - Characteristics of UJT -					K2	13					
V	Opto Electric Device Construction - Operation LDR – Photo Diode - Ph LED – IR Emitter – L LASER Diode .	Opto Electric Devices: Introduction to Opto electric devices - Construction - Operation and Characteristics of Opto Electronic Devices - LDR – Photo Diode - Photo Transistor – Photo Voltaic Cell – Solar Cell – LED – IR Emitter – LCD –Seven Segment Display – Opto couplers- LASER Diode .										
Course	CO1: Recognize the varie	CO1: Recognize the various concepts of semiconductor physics.										
Outcome	CO2: Understand the ope Semiconductor devices.	eration and character	istics of	various		K2						

	CO3: App	ply the o	peratio	n of	the dev	ices to var	io	us appl	lication d	lesigns		K3			
	CO4: Illu opto elect	strate the ric devic	e functi es.	iona	lity of d	ifferent ki	nd	s of spe	ecial dio	des and		K3			
	CO5: Ana	alyze the	charac	eteri	stics of t	he device	s i	n differ	rent aspe	cts.		K4			
					Learn	ing Resou	ire	ces							
Text Books	 S. Saliv McGra V.K.M R. S. S 	vahanan, w Hill Pu etha, Rol edha, "A	N. Sur ublishin hit Me Text H	resh ng C etha, Bool	Kumar, Company —Princ c of App	A. Vallav V Limited, iples of E lied Elect	ara N lec roi	aj, "Ele ew Del ctronics nics" , S	ectronics lhi, 8 th ec s'' S Char S.Chand	Devices lition. nd, 7 th E and Co	s and C Edision mpany	vircuits -2014 Ltd., 2	s", Tata 2010.		
Reference	1. S.L. Ka	S.L. Kakani, K. C. BhanDai—"A text book Of Electronics". Bernard Grob-"Basic Electronics"-Tata McGraw-Hill Publishing Company Limited New Delhi													
Books Website	2. Bernard https://npt	el.ac.in/	Basic I	$\frac{100}{108}$	$\frac{\text{tronics}^{2}}{8/108/10}$	- Tata McC 8108122/	Jra	aw-Hill	Publish	ing Con	npany I		a, New De	elni.	
Link	https://npt	el.ac.in/o	courses	s/108	<u>8/108/10</u>	<u>8108112/</u>									
	L-Lecture T-Tutorial P-Practical C-											it			
B.Sc –Elec	tronics and Communication Syllabus LOCF - CBCS with effect from											2024	Onwards		
Course Code	Co	urse Tit	le		Cour	se Type		Sem.	Hours	L	Т	Р	C		
21M1UELC01	MENTA CTRONI	LS OF ICS	7	DSC THEORY - I I 5			5	5	-	-	5				
CO-PO Mapping															
CO Number	PO1	PO2	PO 3	Р 04	PO 1 5	PSO1	P	2 SO	PSO3	PSC 4) PS 05				
CO1	М	L	L	L	S	S		S	М	L	S				
CO2	М	М	L	L	S	М		S	М	L	S				
CO3	S	М	L	М	М	S		S	М	L	Μ				
CO4	М	М	L	М	М	S		S	S	L	S				
CO5	М	М	L	М	S	М		М	S	L	S				
Level of Correlation between CO and PO		L-L	OW			М	[-N	/IEDIU	Μ		S	-STRO	ONG		
Tutoria	l Schedule		Grou	p di	scussion	, Lab Visi	t ,]	Probler	n Solvin	g, Brair	Storm	ing &	Quiz		
Teaching and I	Learning M	lethods	Audio prese	o Vi ntat:	deo lect ion	ure, Chalk	t ai	nd Boa	rd class	PPT Pre	esentati	on and	d Video		
Assessme	nt Method	ls	Class	Tes	st, Unit 🛛	Fest, Assi	gn	ment,	CIA-I, C	IA-II ar	nd ESE				
Desig	Designed By			Verified By						Approved By Member Secretary					
MR.I. BAL	MR.I. BALAKRISHNAN				MR.S.	ARULMA		11]	Dr.S.S	.S.SHAHITHA			





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) AWITE VALETRA MENT AWITE VALETRA MENT AWITE VALETRA MENT

(Autonomous)

B.ScElectronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards										
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С		
23M1UELP01	PRACTICAL: BASIC ELECTRONICS	DSC PRACTICAL - I	Ι	5	-	-	5	3		
Objective	To get familia basically equip Students to	arized with the various ele construct complex circuit	ectronic s in near	instruments a future.	and c	ompone	ents w	vhich		
S.No.		Course Content			K	nowled Levels	lge	Sessions		
1	Colour Coding of Resistors	K1		3						
2	PN Junction Diode Charact	eristics.				K3		3		
3	Zener Diode Characteristics	5.				K3		3		
4	Input, Output & Transfer ch	naracteristics of CE Config	guration			K3		3		
5	JFET Characteristics.					K3		3		
6	SCR Characteristics.					K3		3		
7	DIAC / TRIAC Characteris	tics				K3		3		
8	LDR Characteristics.					K3		3		
9	Verification of Ohm's Law.					K3		3		
10	Verification of KVL and K	CL.				K4		3		
11	Verification of Thevinin's the	heorem.				K4		3		
12	Verification of Notorn's the	eorem.				K4		3		
13	Verification of Super position	on theorem.				K4		3		
	CO1: Recall the colour cod and frequency.	ling of resister, measurem	ent of vo	ltage, currer	ıt	K1				
Course	CO2: Simplify the complex and Theorems	circuits to small circuits	using va	rious laws		K4				
Outcome	CO3: Design and Evaluate Combinational logic circuit	the operations of various s.	gates and	d	K5					
	CO4: Evaluate and Justify	the working of special dig	gital ICs			K5				
	CO5: Build the DC regulate	ed power supply.				K6				
		Learning Resources								
Text Books	1. K A Navas - "Electron Delhi.	ics Lab Manual- Volume	-I "- 6th	Edition - P	HI Le	earning	Pvt.I	.td. New		

Reference Books	2. A. M. Zungeru, J. M. Chuma, M. Mangwala, H. U. Ezea," Handbook of Laboratory Experiments in Electronics Engineering Vol. 1, Volume 1" Notion Press, Incorporated, 2016														
Website	1. <u>http</u>	o://vlabs	.iitkgp.ernet.	in/be/#		, on 1, ,		riotion	11000, 11	eorperate		10			
Link	2. <u>http</u>	o://vlabs	.iitkgp.ac.in/	<u>dec/#</u>											
		L-Lect	ure	T- Tutori al	P-Pr	actical			C-Credit						
B. Sc–Ele	ctronics	and Co	mmunicatio	on Syllab	ous LO	CF - CB	CS with	effect fro	om 2023-	-2024 On	ware	ls			
Course Code		Course	Title	Co	ourse Ty	ype	Sem.	Hours	L	Т	Р	С			
23M1UELP01	PRA EI	CTICAI	L: BASIC DNICS	PRA	DSC CTICA	L - I	Ι	5	-	-	5	3			
	CO-PO Mapping														
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5					
CO1	S	М	L	L	L	М	S	S	L	М					
CO2	S	М	L	S	L	М	М	S	L	М	1				
CO3	М	М	L	М	М	М	S	S	М	М					
CO4	S	М	L	S	М	М	L	S	S	М					
CO5	S	М	L	S	М	М	М	S	S	М					
Level of Correlation between CO and PO			L-LOW			М	-MEDIU	ſМ		S-STRO	NG				
Tutorial Sched	lule			Group o	liscussi	on, Lab V	/isit, Pro	blem Sol ^y	ving, Bra	in Storm	ing 8	z Quiz			
Teaching and	Learnin	g Meth	ods	Demons	stration,	Hands o	on Trainir	ng and Pr	actical S	essions					
Assessment M	ethods			Observa	ation, C	IA-I, CIA	A-II and I	ESE							
Designed By					Ve	rified By	7		Approved By Member Secretary						
MR.I. BALAKRISHNAN MR.S. ARULMANI Dr.S.SHAHITHA															





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

B.Sc –Elec	tronics and Communication Sylls	abus LOCF - CB	CS with	effect from	2023-	2024 O	nward	ls
Course Code	Course Title	Course Type	Sem	Hours	L	Т	Р	С
23M2UELC02	APPLIED DIGITAL ELECTRONICS	DSC THEORY - II	II	5	5	-	-	5
Objective	To impart basic knowledge Boolean algebra and design of co	to the students for mbinational and se	r understa equential	anding of va logic circuit	rious 1 s.	number	system	ıs,
Unit	Cour	rse Content			K	nowled Levels	ge Se	essions
Ι	Number systems: Binary Signal Number System - Octal Number – Conversion from One Number BCD – Gray code – Excess 3 Coc Boolean algebra: Binary Arithm 10's Complements- Basic laws Theorem - SOP and POS- Karnau	al n - & 's	K2		12			
п	Combinational Elements: Logic NOR, NAND & NOR - Logic Universal Gates - Half & Full Binary adder- Encoder - Decc Implementation using 74147, 744	K- - it -	K3		12			
ш	Sequential Elements: Flip Flop Slave - D & T Flip Flops – Shift – Shift Left – Shift Right - Cou Down - Modulo Up - Modulo I Counter -Ring counter – Twist Implementation Using 7476, 7495	s- RS - Clocked Registers: SIPO – nters - Hexadecin Down - UP/DOW ted Ring Counter 5, 7493 & 7490 IC	RS - JK SISO – nal Up - N Count r. Johnso "s.	- JK Maste PIPO – PIS Hexadecima ers - Decadon On Counter	er O al le -	K3		12
IV	A/D AND D/A Conversion: Counter Ramp Type of ADC - Su Dual Slope Type of ADC - AI weighted Resistor type of DAC Accuracy and Resolution - Imp 0800 IC's.	Parallel Compara accessive Approxim DC Accuracy and - R-2R Ladder 7 lementation using	tor Type mation T l Resolut Type of g ADC 0	e of ADC ype of ADC tion - Binar DAC - DA 9809 & DA	- y C C	K4		12
V	8085 Microprocessor: Introdu Addressing Modes - Instruction f - Machine Cycles of Opcode Fe instructions- Stack and Stack Ope	ction - Pin deta formats- Classifica tch, Memory Rea erations - Interrupt	ails - A ition of Ii d/Write, s - Applie	rchitecture nstruction So IN and OU cations.	- et T	K3		12
Course	CO1: Recognize and outline the Algebra.	various number sy	stems and	d Boolean		K1		
Outcome	CO2: Understand and apply the d	esign procedure of	f digital c	vircuits.		K2		

	CO3: D	emonstrat	te the desig	gn proced	ures	over com	binationa	l and seq	uential ci	rcuits.		K3	
	CO4: P	erform the	e data con	version pr	oces	s using va	rious A/l	D and D/	A convert	ers.		K3	
	CO5: II	lustrate ar	nd analyze	the digita	l log	ics using	basic mic	croproces	sor.			K4	
				L	earni	ing Resou	irces						
Text Books	Text Books1. Donald, P.Leach, Albert Paul Malvino and Goutam Saha, "Digital Principles and Applications", 8th Edition- 2014 TMH, New Delhi.2. S. Salivahanan, "Digital Circuits and Design", 4th Edition S.Chand- 2012.3. Ramesh.S Gaonkar "Microprocessor Architecture, Programming and Applications With the 8085/8080A –New Age International – 5th Edition.												
 Reference Books 1. Virendra Kumar, "Digital Technology Principles and Practice", 2nd Edition- New Age International publications, New Delhi - 2015. 2. Jacob.Millman and Christos Halkias, "Integrated Electronics Analog and Digital Circuits and Systems", Second Edition- 2011. TMH, New Delhi. 													
Website Link	Website 1. https://onlinecourses.nptel.ac.in/noc22_ee110/preview Link 2. https://onlinecourses.swayam2.ac.in/cec21_cs16/preview Link Lalecture T_Tutorial P_Practical C_Credit												
D.C.		L-Lectu	-Lecture I-Iutorial P-Practical C-Credit										
B.Sc -	-Electron	ics and C	Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwar								rds	C	
23M2UE	ELC02	API	PLIED DI	TitleCourse TypeSem.HourseIGITALDSCII5NICSTHEORY - IIII5			5	5	-	-	5		
			CO-PO	Mapping		THEOR							
CO Nu	mber	PO1	PO2	PO3	PO	4 PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO	1	S	М	L	S	М	М	М	М	М	L		
CO	2	S	М	L	S	М	S	М	М	М	М		
CO	3	L	М	L	S	М	S	М	М	М	М		
CO	4	М	М	L	Μ	S	L	М	S	S	М		
CO	5	М	Μ	L	Μ	М	S	М	S	М	М		
Level Correla between PO	l of ation CO and)		L	-LOW			Μ	I-MEDIU	JM	S	-STRON	JG	
Tutorial S	chedule			Group d	iscus	sion, Lab	Visit, Pr	oblem So	olving, Br	ain Storr	ning & (Quiz	
Teaching a	and Learı	ning Metl	ıods	Audio V presenta	'ideo tion	lecture, C	Chalk and	Board c	lass PPT 1	Presentat	ion and	Video)
Assessmen	t Method	ls		Class Te	est, U	nit Test,	Assignm	ent, CIA	-I, CIA-II	and ESI	Ξ		
Designed ByVerified ByApproved ByMember Secretary													
	Designe	ed By				Verified	By		N	Appro Iember (veu by Secretar	y	





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

B.ScElect	tronics and Communication S	yllabus LOCF - CBCS	with eff	ect from	2023-2	2024 (Onwa	rds		
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	C		
23M2UELP02	PRACTICAL: DIGITAL ELECTRONICS	DSC PRACTICAL-II	II	5	-	-	5	3		
Objective	To get familiarized w basically equip Students to co	vith the various electronic onstruct complex circuits	c instrun in near f	nents and future.	compo	onents	whic	h		
S.No.	С	ourse Content			Kn I	owled Levels	ge	Sessions		
1	Truth Table Verification of Basic Gates. K4									
2	NAND and NOR as a Universal Gate (Any 3 Logics) K5									
3	Verification of De Morgan's 7	ſheorem.				K5		3		
4	Truth Table Verification of H	alf Adder				K5		3		
5	Truth Table Verification of F	Truth Table Verification of Full Adder K								
6	Truth Table Verification of H	alf Subtractor				K5		3		
7	Truth Table Verification of F	ull Subtractor				K6		3		
8	Encoder Using 74147 IC					K6		3		
9	Decoder Using 7442 IC					K6		3		
10	Multiplexer Using 74153 IC					K6		3		
11	Demultiplexer Using 74155 I	С				K6		3		
12	Parity Generator and Checker					K6		3		
13	MS JK Flip Flop Using 7476	IC				K6		3		
14	Parallel In Parallel Out Shift I	Register Using 7495 IC				K6		3		
Course Outcome	CO1: Recall the color coding current and frequency.	of resister, measuremen	t of volta	age,		K1				

	CO2: Simplify the complex circuits to small circuits using various laws and Theorems	K4				
	CO3: Design and Evaluate the operations of various gates and Combinational logic circuits.K5					
	CO4: Evaluate and Justify the working of special digital ICs	K5				
	CO5: Build the DC regulated power supply.	K6				
	Learning Resources					
Text	1. K A Navas - "Electronics Lab Manual- Volume-I" - 6th Edition - PHI	Learning Pvt.	Ltd., New			
Books	Delhi.	C	·			
Reference	2. A. M. Zungeru, J. M. Chuma, M. Mangwala, H. U. Ezea," Handbook of	Laboratory Ex	periments			
Books	in Electronics Engineering Vol. 1, Volume 1" Notion Press, Incorporated	, 2016				
Website	1. <u>http://vlabs.iitkgp.ernet.in/be/#</u>					
Link	2. <u>http://vlabs.iitkgp.ac.in/dec/#</u>					

B.Sc –Elect	tronics a	and Comr	nunicatio	n Sylla	bus l	LOCF - (CBCS wi	ith effec	t from 2(23-2024	Onw	ards			
Course Code		Cour	se Title			Course	Туре	Sem.	Hours	L	Т	Р	C		
23M2UELP02	I	PRACTICA ELECT	AL:DIGIT TRONICS	TAL		DS PRACTI II	C ICAL -	II	5	-	-	5	3		
		CC)-PO Ma	pping											
CO Numbe	er	PO1	PO2	PO3	PO-	4 PO5	PSO1	PSO2	PSO3 PSO4 PS 05						
C01		S	М	L	L	L	М	S	S	L	М				
CO2		S	М	L	S	L	М	М	S	L	М				
CO3		М	М	L	Μ	М	М	S	S	М	М	-			
CO4		S	М	L	S	М	М	L	S	S	М	-			
CO5		S	М	L	S	М	М	М	S	S	М	М			
Level of Correl between CO ar	lation nd PO		L-I	LOW			М	-MEDIU	JM	S-	STRC	ONG			
Tutorial Schedu	ıle			G	roup (uiz	discussio	n, Lab Vi	isit, Prot	olem Solv	ing, Brai	n Stor	ming	&		
Teaching and L	earning	g Methods	•	D	emon	stration,H	lands on	Training	g and Prac	ctical Ses	sions				
Assessment Me	thods			O	bserv	ation, CL	₄- I, CIA∙	-II and E	SE						
Designed By						Verified	By	Α	pproved	By Men	ıber S	becreta	ary		
MR.I. BALAKRISHNAN					MR.S. ARULMANI Dr.S.SHAHITH/					\					





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

B.Sc-El	B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards															
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	C								
23M3UELC03	ELECTRONIC CIRCUITS	DSC THEORY - III	III	6	4	2	-	5								
Objective	To acquaint the s amplifiers, Oscillators and	tudents to understand a Multivibrators.	and gain	the knowled	ge on	power supp	olies, va	arious								
Unit		Course Content				Knowledg Levels	ge Se	ession s								
I	Power Supply: Half Wa Rectifier - Average value Ripple factor - Efficiency Voltage Regulators : Seri Regulators (78XX & 79X)	ave Rectifier - Full e - RMS value - For - TUF - PIV - Filters es Regulators - Shunt X) -Design of dual IC	Wave R m facto : C, L, Regula regulate	Rectifier - Br r - Peak fac LC, CLC, CI tors - IC Vo d power supp	ridge tor - RC – ltage ly	K3		15								
II	Wave shaping circuits: RL Circuits – Basic Diffe Clamping Circuits – Volta	introduction to Wave rentiator - Basic Integ ge Doubler – Tripler –	Shaping rator - C - Quadru	Circuits – R Clipping Circu upler.	C & uits -	K3		15								
ш	BJT Amplifiers: Transis Common Emitter-AC Lo collector amplifier- comr CMRR- Darlington Ampl Cascade Amplifier-Large C Power Amplifiers	BJT Amplifiers: Transistor as an amplifier-small signal Analysis of Common Emitter-AC Load line, Voltage swing limitations- Common collector amplifier- common base amplifiers – Differential amplifiers CMRR- Darlington Amplifier- Bootstrap technique - Cascaded stages Cascade Amplifier-Large signal Amplifiers - Class A, Class B and Class								nsistor as an amplifier-small signal Analysis of Load line, Voltage swing limitations- Common ommon base amplifiers – Differential amplifiers- nplifier- Bootstrap technique - Cascaded stages - ge signal Amplifiers - Class A, Class B and Class				K5		15
IV	Feedback Amplifiers: Ba feedback – Gain-Bandw Impedance - Types of N Shunt - Current Series and	asics concepts of Feed vidth- Distortion, No legative Feedback - V Current Shunt Feedba	back - E bise- In Voltage ick.	Effects of neg put and O Series - Vo	ative utput ltage	K5		12								
V	Oscillators and Multiv Barkhausen Criterion- Cla Colpitt's Oscillator - Cla Bridge - Crystal Oscillato Multivibrator - Monosta Schmitt Trigger. *Current Trends: Design	ibrators: Concept of assification of Oscillat pp Oscillator - Phase or - Frequency stability ble Multivibrator -	of susta ors - Ha Shift (y of Oso Bistable rs	ained oscilla artley Oscilla Oscillator - V cillators - As Multivibrat	tion- tor – Wein table tor -	K4		15								
Course	CO1: Remember the apple supply designCO2: Interpret the function diode.	ications of diodes and onality of different wa	apply it ave shap	over power	ising	K1 K2										
Outcome	CO3: Classify and Model power and coupling method	the BJT amplifiers bas	sed on th	ne frequency,		K3										
	CO4: Analyze the principamplifiers and oscillators.	ples of feedback syste	ems beh	ind the desig	gn of	K4										

	CO5: Evaluate the performance of various electronic circuits. K5								
Learning Resources									
Text Books	 S. Salivahanan, N. Sur McGraw Hill Publishing V. K. Metha, Rohit M R. S. Sedha, " A Text 	resh Kumar, A. Valla Company Limited, N etha, —Principles of Book of Applied Elec	varaj, "Electronics Devices a lew Delhi, 8th Ed. Electronics" S Chand, 2006. ctronics", S. Chand and Cor	nd Circuits", Tatang Series (2010).	a				
Reference	1. B.Sasikala, C.Poornachandra, Electronic Devices and Circuits", Scitech 2003.								
Books Wabsita	2.B. L. Theraja, "Basic F	$\frac{1}{2} \frac{1}{2} \frac{1}$	te Devices", S.Chand & Cor	npany Ltd. 2000					
Link	https://nptel.ac.in/course	s/108/102/108102095	Analog Electronic circuits						
*Self Study Material	https://www.startus-insig	ghts.com/innovators-g	uide/electronics-manufactur	ing-trends/					
	L-Lecture T-Tutorial P-Practical C-Credit								

B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards												
Course Code	0	Course T	itle	0	Course Ty	ре	Sem.	Hours	L	Т	Р	С
23M3UELC03	EI	LECTRO CIRCUI	DNIC TS	DSC THEORY - III			III	6	4	2	-	5
	CO-PO Mapping											
CO Number	PO 1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	М	М	L	L M M S S M M M								
CO2	М	L	L	L	М	S	S	М	L	М		
CO3	М	М	L	М	L	S	М	М	L M			
CO4	М	М	L	М	М	М	М	М	М	S		
CO5	М	М	L	М	М	S	S	М	М	S		
Level of Correlation between CO and PO			L-LOV	V		M	M-MEDIUM S-STRONO				TRONG	
Tutorial Sched	ule		Gro	oup discu	ussion, La	b Visit, I	Problem	Solving	, Brain S	Storming	; & Quiz	
Teaching and I Methods	Learni	ng	Auc pres	lio Vide sentation	eo lecture, n	Chalk a	nd Boar	d class P	PT Prese	entation	and Video	
Assessment Me	ethods		Cla	ss Test,	Unit Test	, Assign	ment, C	EIA-I, CL	A-II and	ESE		
Designed By				Verified By				A	Approve	d By M	ember Sec	retary
MR.I. BALA	AKRIS	HNAN		MR.S. ARULMANI					D	r.S.SHA	AHITHA	





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

B. Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards											
Course Code	Course Title	Course Type	Sem	Hour	s L	Т	Р	С			
23M3UELP03	PRACTICAL:ELECTRONIC CIRCUITS	DSC PRACTICAL - III	III	4	-	-	4	3			
Objective	To prepare the students to design and analyze various electronic circuits using active and passive components.										
S.No.	List of Experiments /	Programs (Any 1	0)		Know Lev	ledge els	\$	Sessions			
1	Half wave, Full wave and Bridge Rectifier with capacitor filter.K2										
2	Basic Integrator and Differentiator				K	4		5			
3	Clipper and Clapper Circuits (Posit	tive and Negative))		K	4		5			
4	Voltage Doubler and Tripler				K	5		5			
5	Hartley Oscillator, Colpitt's Oscilla	ator Using Transis	stor.		K	5		5			
6	RC Phase shift Oscillator using tra	nsistor.			K	5		5			
7	Crystal Oscillator using Transistor				K	5		5			
8	UJT as relaxation Oscillator.				K	5		5			
9	Astable and Monostable Multivibra	ator Using Transis	stors.		K	5		5			
10	Bistable Multivibrator and Schmitt	Trigger Using Tr	ansistors		K	5		5			
11	Design of Dual Regulated Power s 79XX.	upply using IC 78	XX and		K	5		5			
12	Automatic Street light control usin	g LDR.			K	5		5			
13	Lamp Dimmer using DIAC and TH	RIAC.			K	6		5			
	CO1: Remember and understand t	he applications of	PN junct	tion Die	ode.			K1			
Course Outcome	CO2: Demonstrate and analyze the components.	e various wave sha	aping circ	cuits us	ing discr	ete		K3			
	CO3: Evaluate the performance of	electronic circuits	5.					K5			

	CO4: Create a D	CO4: Create a DC regulated Power supply. K6								
	CO5: Build simp	simple real time applications using basic discrete components. K6								
Learning Resources										
Text Books	1. K A Navas - "Electronics Lab Manual- Volume-I "- 6th Edition - PHI Learning Pvt. Ltd., New Delhi.									
Reference Books	1. A. M. Zunger Experiments 2016	ru, J. M. Chuma, M. Mang in Electronics Engineering	wala, H. U. Ezea," Ha Vol. 1, Volume 1" N	andbook of Laborate otion Press, Incorpo	ory orated,					
Website Link	1. <u>http://vlabs.iitkgp.ac.in/ssd/#</u>									
L-Lec	ture T-Tutorial P-Practical C-Credit									

Course Code	Course Title				Course Type		Sem	Hours	L	Т	Р	С	
23M3UELP03	PRACTICAL: ELECTRONIC CIRCUITS				DSC PRACTICAL - III		III	4	-	-	4	3	
CO-PO Mapping													
CO Number	P01	P02	P03	P04	P05	PS	01	PSO2	PSO:	3 PS	504	PSO5	
CO1	М	S	L	М	S	5	S	М	S	S M		S	
CO2	М	L	L	М	S	5	S	М	S]	М	S	
CO3	М	S	L	М	S	5	S	М	S]	М	М	
CO4	М	S	L	S	S	5	S	М	S		S	М	
C05	М	S	L	S	S	5	S	М	S		S	М	
Level of Correlation between CO and PO: L-LOW, M-MEDIUM, S-STRONG													
Tutorial Schedule				Group discussion, Lab Visit, Problem Solving, Brain Storming & Quiz									
Teaching and Learning Methods				Demonstration, Hands on Training and Practical Sessions									
Assessment Methods				Observation, CIA-I, CIA-II and ESE									
Designed By				Verified By				Approved By Member Secretary					
MR.I. BALAKRISHNAN				MR.S. ARULMANI				Dr.S.SHAHITHA					




(Autonomous)

B.ScEleo	ctronics & Communication Syllabus	LOCF-CBCS	with effe	ect from 20)23-2	2024 Onv	vards						
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С					
23M4UELC04	PRINCIPLES OF COMMUNICATION SYSTEMS	DSC THEORY - IV	IV	5	3	2	-	4					
Objective	Students learn about the co modulation techniques and to incul	oncept of wave cate the princip	propagat le of radio	ion metho o receivers	ds, a	cquire kn	owled	ge on					
Unit	Course	e Content				Knowled e Levels	lg Se	essions					
I	Wave propagations and Ante Propagation of EM wave - Grou propagation – Sky wave propagati Monopole and dipole antenna- direct VSAT - UHF and VHF Transmittin antenna- applications.	Wave propagations and Antennas: EM frequency spectrum Propagation of EM wave - Ground wave propagation - Space was propagation – Sky wave propagation - Antennas - Types of antenna Monopole and dipole antenna- directional and Omni directional antenna VSAT - UHF and VHF Transmitting and Receiving Antenna - parabo											
II	Analog modulation: Types of Amplitude modulation –Modulation and VSB - Frequency modulation De Emphasis Phase modulation –	modulation –F on index – DSI - modulation in - Basic principl	requency 3SC – D dex – Pre e- Modula	spectrum SBFC - SS e-Emphasis ation Index	- SB 	K4		12					
Ш	Receivers: AM Receiver: AM R Receivers – Super heterodyne rece Simple and Delayed AGC FM receiver: Stereophonic FM receiver FM receiver	leceivers: Type ivers – SSB re eiver – Analog	es of reco ceiver – FM Rece	eivers - T AGC type: iver – Digi	RF s – tal	K4		12					
IV	Pulse modulation: Definition-Typ PAM, PWM, PPM, DPCM, PCM – Quantization error – Companding	es: Generation - Sampling theo	and Dete rem – Qu	ction of antization	_	K3		12					
V	Digital modulation Techniques: A – MSK – PSK *Current Trends- Multiple Acces	ASK – FSK- CP s Techniques	PFSK – C	PM –GMS	K	K3		12					
	CO1: Recall the principles of the elec	ctromagnetic sp	ectrum ar	nd wave		K1							
Course	CO2: Contrast and illustrate the vario of modulation techniques.	and princip	les	K2									
Outcome	CO3: Predict and criticize the perform communication receivers.	nance of differe	nt stages	of		K3							
-	CO4: Analyze the performance of var	rious pulse mod	ulation te	chniques.		K3							

	CO5: Classify and select the appropriate peripheral devices to design Microcontroller based systems.	K5								
	Learning Resources									
Text Books	 K.D. Prasad and Sathya Prakash, "Antenna wave propagation", IstEd (201" George Kennedy, "Electronic Communication systems", 6thEd, TMH,New 3 Roddy and Collen, "Electronic Communication systems", Pearson India (201) 	7) Delhi, 008)								
Reference Books	 Louis E Frenzel, "Communication Electronics principles and Application 3rd Ed (2008) Sanjeev Gupta, "Electronic Communications", Khanna publications, 3rd Ed 	s", TMH, Ne (1997)	ew Delhi,							
Website Link	 <u>https://onlinecourses.nptel.ac.in/noc22_ee115/preview</u> <u>https://onlinecourses.nptel.ac.in/noc22_ee73/preview</u> <u>https://onlinecourses.nptel.ac.in/noc22_ee118/preview</u> 	· · · · · · · · · · · · · · · · · · ·								
*Self Study Material	https://nlist.inflibnet.ac.in/search/Search/Results?lookfor=Blockchain+Integration/ ation%7E	on+in+Telecc	ommunic							

]	L-Lectur	re		T-T	utorial		P-P	ractical		C	C-Credit		
B.Se	c-Electron	ics & C	ommu	nicatio	n Sylla	bus LC	OCF-CE	SCS with	n effect f	From 2023	8-2024 C	nwards		
Course Co	ode	Cour	se Titl	e	C	ourse	Гуре	Sem.	Hours	L	Т	Р	С	
23M4UELO	C04 C	PRINC OMMU SYS	IPLES NICAT STEMS	OF FION	Tł	DSC HEORY	2 7 - IV	IV	5	3	2	2 -		
					,	23M4U	3M4UELC04							
CO Nu	mber PO1 PO2 PO3 PO4 PO5 PSO1 PSO2 PSO3 PSO4 PSO5													
CC	01	М	L	S	S	L	S	L	S	L	L			
CO	02	S	М	L	М	L	М	М	М	S	М			
CO	03	S	М	L	М	М	М	S	S	М	S			
CO	04	М	S	L	S	М	S	М	М	L	М			
CO	05	М	S	L	L	М	S	М	S	S	М			
Level of Co between C	orrelation O and PO		I	L-LOW	- -		М	-MEDIU	JM		S-STR	ONG		
Tutorial So	chedule			Group	discuss	ion, La	b Visit,	Problem	Solving	, Brain St	orming a	& Quiz		
Teaching a	nd Learni	ng Met	hods	Audio present	Video 1 ation	lecture,	Chalk a	nd Boar	d class F	PT Prese	ntation a	nd Video		
Assessmen	t Methods			Class 7	Test, U1	nit Test	, Assign	nment, C	CIA-I, CI	A-II and I	ESE			
]	Designed I	By				Verifi	ed By		A	Approved	By Mer	nber Secr	etary	
Mrs.P.V	JAYAL	AKSHM	11		MR	L.S. AR	ULMA	NI		Dr	.S.SHAI	HITHA		





(Autonomous)

B. Sc-Electroni	ics & Communication Syllabus	LOCF-CBCS wi	th effect	from 20	23-202	4 Onv	vard	ls				
Course Code	Course Title	Course Type	Sem	Hours	L	Т	Р	С				
23M4UELP04	PRACTICAL: COMMUNICATION SYSTEMS	DSC PRACTICAL- IV	IV	3	-	-	3	3				
Objective	To Impart the students in	n design and Anal	ysis of va	rious Co	mmuni	cation	Circ	cuits.				
S.No.	List of Experiments	s / Programs (Any	y 10)		Know Lev	ledge els		Sessions				
1	Design a K - Low Pass Filter				K	5		5				
2	Design a K - High Pass Filter	sign a K - High Pass Filter K5										
3	Amplitude Modulation and De	emodulation			K	4		5				
4	Frequency Modulation and De	emodulation			K	4		5				
5	PAM generation and detection	1			K	4		5				
6	PWM generation and detectio	n			K	4		5				
7	PPM generation and detection	l			K	4		5				
8	Pre-Emphasis and De-Emphasis	sis			K	4		5				
9	Generation of ASK				K	4		5				
10	Study of PCM Generation and	l Detection			K	2		5				
11	AM/FM receiver circuits				K	2		5				
12	Generation of FSK				K	2		5				
13	Installation and Alignment of	DTH Receiver			K	5		5				
	CO1: Understand the AM/FM	1 Receivers.						K1				
Course Outcome	CO2: Design and analyze filte	ers for communica	tion devi	ces.				K3				
	CO3: Demonstrate and analyz	ze the different Mo	odulators	and Dete	ectors			K3				

	CO4: Design a	and analysis of Pulse mo	dulators and detectors		K4						
	CO5: Build and align a DTH receiver										
	Learning Resources										
Text Books	1. S. Poorna Company,	Chandra, B. Sasikala, Reprint (2005)	"Electronics Labora	tory Primer", S. C	Chand and						
Reference Books	1. K A Navas Sixth Edition	, Electronics Lab Manua on	l- Volume-II, PHI Lea	arning Pvt.Ltd. New	Delhi,						
Website Link	https://www.yo https://www.so	outube.com/watch?v=E5 pribd.com/document/360	ev <u>BWUI9zI</u> 00190/DTH-Installati	on-Procedure							
https://www.scribd.com/document/36000190/DTH-Installation-ProcedureL-LectureT-TutorialP-PracticalC-Credit											

B. Sc-Ele	ctronics & Con	imunica	tion Syl	labus L	OCF-C	BCS wi	th effec	t from 2	023-202	24 Onwa	ards	
Course Code	Cours	e Title		Co	ourse Ty	pe	Sem.	Hour s	L	Т	Р	С
23M4UELP04	PRACT COMMUN SYST	FICAL: NICATIO EMS	DN	PRA	DSC CTICA	L-IV	IV	3	-	-	3	3
				CO-PO	Mappi	ng						
CO Number	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO1	S	М	L	L	М	S	L	М	L	М		
CO2	S	М	A L M L M S M L M									
CO3	М	М	S	М	L	М	L	S	М	М		
CO4	М	М	L	М	М	S	М	М	L	М		
CO5	М	М	L	М	М	М	М	S	М	М		
Level of Correlation between CO and PO		L-L	ЭW			M	-MEDIU	JM		S-STRO	NG	
Tutorial Sched	ule	Group	discussi	on, Lab	Visit, P	roblem S	Solving,	Brain St	torming	& Quiz		
Teaching and I Methods	Learning	Demor	nstration	,Hands o	on Train	ing and	Practica	l Session	15			
Assessment Me	ethods	Observ	vation, C	IA-I, Cl	A-II and	1 ESE						
Design	ned By		V	erified l	By		Ар	proved	By Mer	nber Se	cretar	y
Mrs.P.VIJAY	ALAKSHMI		MR.S.	ARUL	MANI			Dr.	S.SHAI	HITHA		





(Autonomous)

B. Sc-Ele	ectronics & Communicat	t from	2023-2	2024 Onwa	rds								
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С					
23M5UELC05	LINEAR INTEGRATED CIRCUITS AND ITS APPLICATIONS	DSC THEORY – V	V	5	3	2	-	4					
Objective	To learn about th integrated circuits, as we	e IC fabrication	process a equainted	nd the fund with linear	lamenta integrat	l buile ed cire	ling blocks cuit applicat	of linear					
Unit		Course Conte	nt			K	nowledge Levels	Sessions					
I	IC Fabrication and Log – IC Integration Density technology-Basic Planar CMOS - Characteristics ECL – IIL – CMOS-Com	C Fabrication and Logic Families: Introduction of IC and its T IC Integration Density & Its Types –Fundamentals of Monolith chnology-Basic Planar Process - Fabrication of FET, MOSF MOS - Characteristics of logic families – DL – RTL – DTL – T CL – IIL – CMOS-Comparison of logic families.											
п	Operational Amplifiers OP-AMP – Manufacture diagram of IC 741-A Translator-Differential A	: Introduction an r Designation of C Characteristics mplifier-Open and	d Block o Linear IC -DC C d closed lo	diagram - 7 C'S –Interna Characteristi Dop configu	The idea al circu cs-Leve trations.	1 t 1	K2	12					
ш	OP-AMP Applications: Adder - Subtractor - Multo I Converter - I to V C Follower-Sign Changer-S	Inverting Amplifi tiplier - Divider - onverter-Log and Scale Changer.	er-Non-In Integrator Antilog	verting Ar - Different Amplifier –	nplifier iator - V Voltag	- / e	K4	12					
IV	Filters and Waveform C filter - First order High-P - RC Oscillator – LC Os wave - Saw tooth wavefo	Generators: Activ Pass filter - Band p scillators - Square rm generator.	e filter - I pass filter e wave ge	First order I s - Band rej enerator -T	Low Pas lect filte riangula	s r r	K4	12					
V	Timer and PLL: Int Functional diagram - M Schmitt trigger – Introdu phase detector/compara Monolithic PLL (IC 565) *Current Trends:Varial	roduction to IC Ionostable Opera action to PLL - b tor-voltage contra- Applications of ble Voltage Regul	555 tin ation - A asic princ rolled os PLL. ator IC Ll	mer-Descrip stable ope ciple and o cillator (I M317/337	ption o rations peration C 566)	f - -	K5	12					
	CO1: Understanding bas	ic knowledge in I	C fabricat	ion procedu	ıre.		K1						
	CO2: Understand the cha	aracteristics of Op	-Amp.				K2						
Course	CO3: Apply knowledge	on the Application	ns of Op-a	imp.			K3						
Outcome	CO4 : Analyze to design generators.	various filters in c	ircuit and	waveform			K4						
	CO5: Analyze functional	blocks and the ap	plication	s of special	ICs.		К5						

	Learning Resources												
Text Books	1. 2.	D.Ro Rama India.	y Choud 1kant A.	hry, Sh Gayakv	ail Jain wad, "(n, "Line Op-amp	ar Integra s & Linea	ited Circu ir Integra	uits", Nev ted Circu	w Age Ir uts", 3rd	ternation Edition,	nal Pvt Prenti	. Ltd ice Hall
Reference Books	1. 2. 3.	Willia Educa Rober educa 3.S.S	am D. St ation, 20 rt F Coug ation, 200 alivahan	anley, 04. ghlin, H 02. an& V.	"Opera Fredricl .S. Kar	tional A k, F. Dr achana H	xmplifier isold, "Oj Bhaskarar	with Lin p-amp an n, "Linear	ear Integ d linear I r Integrat	rated Cir Cs", 4th ed Circu	cuits", P Edition, its", TM	earson Pearso H, 200	on 08.
Website Link	1.	https:	//onlinec	courses	.nptel.a	ac.in/no	c24_ee81	/preview			-	-	
*Self Study Material	<u>htt</u> p	https://electrocredible.com/variable-voltage-regulator-circuit-diagram-working/#google_vignette											
]	L-Lecture T-Tutorial P- Practical C-Credit ronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards											
B. Sc–Elec	troni	onics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards											
Course Code		Course TitleCourse TypeSem.HoursLTPC											
23M5UELC05	LI (NEAI CIRC APF	R INTEGRATED CUITS AND ITS PLICATIONSDSC THEORY - VV532-4										
						CO-PO	Mappin	g					
CO Number		PO 1	PO2	PO 3	PO4	PO5	PSO1	PSO 2	PSO3	PSO 4	PSO5		
CO1		S	М	L	L	L	М	S	S	L	М		
CO2		S	М	L	S	L	М	М	S	L	М		
CO3		М	М	L	М	М	М	S	S	М	М		
CO4		S	М	L	S	М	М	L	S	S	М		
CO5		S	М	L	S	М	М	М	S	S	М		
Level of Correlation between CO an PO	ıd		L	LOW			M	-MEDIU	М		S-STF	RONG	
Tutorial Schedu	ule			Group	o discu	ssion, L	ab Visit,	Problem	Solving,	Brain St	orming &	& Quiz	2
Teaching and L Methods	.earn	ing		Audic preser	Video ntation) lecture	e, Chalk a	nd Board	l class PP	T Prese	ntation ar	nd Vid	eo
Assessment Me	thod	S		Class	Test, I	Jnit Tes	t, Assign	ment, C	IA-I, CIA	-II and I	ESE		
Desig	ned By Verified By Approved By Member Secretary												
Mr. AR	ULM	IANI			M	r.S. AR	ULMAN	T		Dr.	S.SHAH	ІТНА	





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) A

(Autonomous)

B. Sc-E	lectronics & Communication	n Syllabus LO	OCF-CB	SCS with	effect fr	om 20	023-2024 Onv	wards				
Course Code	Course Title	Course Type	Sem.	Hour s	L	Т	Р	С				
23M5UELC06	EMBEDDED SYSTEMS AND PIC MICROCONTROLLER	DSC THEORY - VI	V	5	3	2	-	4				
Objective	To give good unders software techniques for deve	tanding to the loping an emb	student bedded s	s about v ystem.	arious P	IC mi	crocontroller	features and				
Unit		Course Conte	ent				Knowledge Levels	Sessions				
Ι	Embedded Systems: Definition Definition of the system of	mbedded Systems: Definition and classification – Overview icroprocessor, Microcontroller, and DSP – exemplary erformance processors – CISC and RISC architecture – hardware us membedded System- software embedded into a system – exemplications – embedded systems on a chip and in VLSI circuit										
п	PIC 16F877 Architecture Architecture - Memory Orga INTCON Register - PCON Oriented Operations - Bit Operations.	and Instruc nization - Sta Register - I/O Oriented Op	tion Se tus Regi Ports - erations	t: Devic ster - Op Data EE Literal	e Overvi tion Regi PROM - and Co	iew - ister - Byte ontrol	K3	12				
ш	Features of PIC: TIMER Module - Capture/Compare reception - USART – SPI - on Reset — Power up Time Reset— Interrupts — Watch	0 Module - 7 e/ PWM Module ADC Module er — Oscillate dog Timer —	TIMER dules - - Oscill or Startu Sleep.	1 Modul I ² C tran ator Sele p Timer	e - TIM smission ection - P — Brov	ER 2 and Power vnout	K4	12				
IV	Interfacing And Application and Solenoid Interfacing – Display Interfacing – LCD motor interfacing – DC m applications. (Use Embedded	ons: Interfacin - Hex Keybo interfacing - notor interfac l C Programm	ng of Sw bard Inte - DAC ing -AD ning)	itch and erfacing interfaci OC applie	LEDs – 1 - 7 Seg ng – St cation -I	Relay gment epper PWM	K4	12				
V	Embedded Software Archi — Round Robin with Ir Architecture— Real Time O — Semaphores and Shared D — Timer Function — Events – Study of Micro C/OS-II - V *Current Trends: RTOS fo	tecture & Op nterrupts — perating Syste Data— Messag S — Memory 2 Vx Works. r IoT Systems	Function Fun	System: n Queu OS) — T es, Mail I ment - T	Round F e Sched asks and Box and ypes of F	Robin uling Data Pipes RTOS	K5	12				
Course	CO1: Recognize the core cor applications	ncepts of Emb	edded sy	stems ar	nd their		K1					
Outcome	CO2: Illustrate the hardware family.	e details of PIC	C16F872	K microco	ontroller		К2					

	CO3: Id Instruct	CO3: Identify and practice the programming methods using PIC K3											
	CO4: A	analyze the so	ftware	archited	cture us	sed in en	nbedded	systems.		K4			
	CO5: D	Demonstrate th	e vario	us deve	elopme	nt tools	ofRTOS	•		K5			
				Lea	rning 1	Resourc	es						
Text Books		 Rajkama TATA N PIC 16F 	al, "En McGrav 587X da	nbedde w- Hill ata bool	d Syste -2017. k, Micr	ems Arc	hitecture echnolog	e, Program y Inc.,	mming	g and Design	1-3 rd E	dition	
Reference Books	ce s	 Program Tata Mc 	nming a Graw l	and cus Hill .	tomizir	ng PIC n	nicro con	trollers-	by My	kepredrco –	2 nd edi	tion –	
Website Link	e	1. <u>https://e</u> 2. https://o	 <u>https://embeddedschool.in/architecture-and-applications-of-pic-</u> <u>https://onlinecourses.nptel.ac.in/noc24_cs33/preview</u> 										
*Self-Stu Materia	ldy al	https://mediu 967c9b8077	1 <u>m.con</u> c <u>6</u>	t-of-th	f-things-devices-								
		L-Lecture	T-Tu	C-Credit									
B.Sc –Ele	ctronics	and Commu	nicatio	from 2	2023-2024 O	nward	ls						
Course Code		Course Title		Co	ourse T	уре	Sem.	Hour s	L	Т	Р	С	
23M5UELC06	EMBE MICR	DDED SYST AND PIC OCONTROL	TEMS DSC V THEORY - VI V		5	3	2	-	4				
				С	O-PO I	Mapping	g						
CO Number	PO1	PO2	PO 3	PO 4	PO 5	PSO 1	PSO2	PSO3	PS O4	PSO5			
CO Number CO1	PO1 S	PO2 L	PO 3 L	PO 4 S	РО 5 М	PSO 1 S	PSO2 M	PSO3 M	PS 04 S	PSO5 M			
CO Number CO1 CO2	PO1 S M	PO2 L S	PO 3 L L	PO 4 S S	PO 5 M M	PSO 1 S M	PSO2 M M	PSO3 M S	PS O4 S M	PSO5 M L			
CO Number CO1 CO2 CO3	PO1 S M S	PO2 L S L	PO 3 L L L L	PO 4 S S S	PO 5 M M M M	PSO 1 S M S	PSO2 M M M	PSO3 M S S	PS O4 S M S	PSO5 M L L	-		
CO Number CO1 CO2 CO3 CO4	PO1 S M S M	PO2 L S L S	PO 3 L L L L L L	PO 4 S S S L	PO 5 M M M M	PSO 1 S M S L	PSO2 M M M M	PSO3 M S S S	PS O4 S M S L	PSO5 M L L S			
CO Number CO1 CO2 CO3 CO4 CO5	PO1 S M S M L	PO2 L S L S M	PO 3 L L L L L L L L	PO 4 S S S L S	PO 5 M M M M M	PSO 1 S M S L S	PSO2 M M M M M	PSO3 M S S S S	PS O4 S M S L M	PSO5 M L L S S			
CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO	PO1 S M S M L	PO2 L S L S M L-LC	PO 3 L L L L L	PO 4 S S S L S S	PO 5 M M M M M M M M	PSO 1 S M S L S M	PSO2 M M M M I-MEDIU	PSO3 M S S S S	PS O4 S M S L M	PSO5 M L L S S S S-STRO	NG		
CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Sche	PO1 S M S M L C	PO2 L S L S M L-LO	PO 3 L L L L W	PO 4 S S L S P discus	PO 5 M M M M M ssion, I	PSO 1 S M S L S M L S	PSO2 M M M M M I-MEDIU	PSO3 M S S S JM	PS O4 S M S L M	PSO5 M L S S S-STRO n Storming &	NG		
CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Sche Teaching and	PO1 S M S M L C C C C C C C C C C C C C C C C C C	PO2 L S L S M L-LC	PO 3 L L L L L W Group Audic presen	PO 4 S S L S D U discusso D Video ntation	PO 5 M M M M M ssion, I	PSO 1 S M S L S M L s M L cab Visit e, Chalk	PSO2 M M M M M I-MEDIU	PSO3 M S S S S JM	PS O4 S M S L M g, Brai	PSO5 M L S S S-STRO n Storming &	NG z Quiz d Vide	20	
CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Schee Teaching and Assessment M	PO1 S M S M L C C C C C C C C C C C C C C C C C C	PO2 L S L S M L-LC	PO 3 L L L L L W Grouj Audio preser Class	PO 4 S S L S D Video ntation Test, U	PO 5 M M M M M Ssion, I	PSO 1 S M S L S M L s t, Assig	PSO2 M M M M M I-MEDIU	PSO3 M S S S JM n Solving rd class F	PS O4 S M S L M g, Brai PPT P1	PSO5 M L L S S S S-STRO n Storming & resentation an nd ESE	NG z Quiz d Vide	20	
CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Schee Teaching and Assessment M De	PO1 S M S M L C C C C C C C C C C C C C C C C C C	PO2 L S L S M L-LC	PO 3 L L L L L M M Group Audio presen Class	PO 4 S S S L S video ntation Test, U	PO 5 M M M M M M Ssion, I	PSO 1 S M S L S M L st. Assignment S M S M S M S S M S S M S S M S S S M S S S M S S S M S S S S S S M S S S S S S S S S S S S S	PSO2 M M M M M I-MEDIU	PSO3 M S S S S JM n Solving rd class I CIA-I, Cl	PS O4 S M S L M g, Brai PPT Pr A-II a roved	PSO5 M L L S S S-STRO n Storming & resentation an nd ESE By Member	NG z Quiz d Vide	eo	





(Autonomous)

B. Sc-Ele	ectronics & Communication S	yllabus LOCF-CBC	CS with eff	ect from	2023-2	024 On	wai	ds						
Course Code	Course Title	Course Type	Sem	Hour s	L	Т	Р	С						
23M5UELP05	PRACTICAL: LINEAR INTEGRATED CIRCUITS	DSC PRACTICAL - V	V	3	-	-	3	3						
Objective	To give a practice to the applications.	ne students for hand	ling variou	s linear	integrat	ed circi	uits	and their						
S.No.	List of Experimen	its / Programs (Any	10)		Know Lev	ledge els		Sessions						
1	Inverting and Non Inverting A	werting and Non Inverting Amplifier using IC741 K3												
2	Summing amplifier using IC 7	Imming amplifier using IC 741 K3												
3	Difference amplifier using IC7	741			K.	3		4						
4	Integrator and Differentiator u	sing IC 741			K.	3		4						
5	Voltage to Current Converter	using IC 741 (Ground	ded Load)		K.	3		4						
6	Low pass Filter using IC 741				K.	3		4						
7	High Pass Filter using IC 741				K.	3		4						
8	Phase Shift Oscillator using IC	C 741			K	4		4						
9	Square and Triangle Wave ger	neration using IC741			K	4		4						
10	Astable Multivibrator using IC	2555			K	4		4						
11	Monostable Multivibrator Usin	ng IC555			K	5		4						
12	Bistable multivibrator using IC	C 555			K	5		4						
13	Schmitt Trigger using IC 555				K	5		4						
	CO1: Understand the basic kn	owledge on basics of	asics of PIC microcontrollers				K1							
Course Outcome	CO2: Interpret a basic knowle a specific task	dge about programm	ning and sys	stem con	trol to p	erform		K2						
	CO3: Illustrate knowledge abo	out devices and buses	s used in er	nbedded	systems	5.		K3						

	CO4: Determine andDevelop programming skills in embedded systems for various													
	CO	5: Acquire	e know	ledge al	bout ba	sic con	cents of c	ircuit em	ulators			K4		
		onroquit		ieuge u		.510 0011								
					Lea	rning F	Resources	5						
Text Books	1. 2.	Joseph Gr Robert Pe	eenfiel ase, tro	d, Pract ublesho	tical dig toting a	gital des malog c	sign using vircuits De	Digital lesigning	ICS, Prent Principles	ice Hall – Newnes	5			
Reference Books	1. 2.	Ronald Qu Charles pl	uan, Tr att, Ele	oublesh ctronic	ooting compo	Electro onents,N	nic circui Iake com	ts-McGr munity I	aw hill TA LC.	'B				
	https	<u>https://onlinecourses.nptel.ac.in/noc24_ee73/preview</u>												
Website Link	<u>https</u> <u>revie</u>	ps://onlinecourses.nptel.ac.in/noc20_ee08/previewhttps://onlinecourses.nptel.ac.in/noc22_ee58/p												
L-L	lecture	rure T-Tutorial P-Practical C-Credit												
B. Sc-H	Electro	ctronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards												
Course Cod	le	Course TitleCourse TypeSem.HoursLTPC												
23M5UELP()5	PRACTIO INTE CIF	CAL: L GRAT RCUITS	INEAR ED S	PR	DS0 ACTIC	C AL - V	V	3	-	-	3	3	
					C	O-PO N	Aapping							
CO Numl	ber	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5			
CO1		L	М	S	М	М	М	L	S	S	М			
CO2		L	L	М	L	S	S	L	L	М	S			
CO3		М	М	L	S	L	S	М	М	L	L			
CO4		М	М	L	S	S	М	L	S	L	S			
CO5		S	S	М	S	S	S	S	S	М	S			
Level of Correbetween CO a	elation and PC	1)]	L-LOW	7		N	I-MEDIU	JM		S-STRO	NG		
Tutorial Sche	dule			Group	o discus	ssion, L	ab Visit,	Problem	Solving, E	Brain Storr	ning & Ç)uiz		
Teaching and	Lear	ning Metl	hods	Demo	onstratio	on, Han	ds on Tra	ining and	d Practical	Sessions				
Assessment N	lethod	ls		Obser	vation,	CIA-I,	CIA-II a	nd ESE						
De	esigneo	d By				Verifie	d By		Appro	ved By M	lember S	Secretar	ry	
MR. I. BA	ALAK	RISHNA	N		MR.	S. ARI	JLMANI			Dr.S.SH	AHITH	4		





(Autonomous)

B. Sc-Electron	nics & Communication Syllab	ous LOCF-CBCS v	with effe	ct fro	om 2	023-2	2024	Onward	ls			
Course Code	Course Title	Course Type	Sem	Ho	urs	L	Т	Р	C			
23M5UELP06	PRACTICAL: EMBEDDED SYSTEMS	DSC PRACTICAL - VI	V	3	3	-	-	3	3			
Objective	To give a practice microcontroller and t understa	to the students for and the programmin	or handl ng techni	ing v ques.	variou	us I/	O De	vices v	vith PIC			
S.No.	List of Experiments	/ Programs (Any	10)		K	lnow Lev	ledge els	S	essions			
1	Addition and Subtraction of 8		4									
2	Multiplication and Division o	f 8 Bit Numbers (U	se ALP)			K	3		4			
3	Sum of 'N' 8-Bit Numbers (U	Jse ALP)				K	3		4			
4	Interfacing of Switch					K	3		4			
5	Interfacing of LEDs					K	3		4			
6	Interfacing of Relays					K	3		4			
7	Interfacing of Single Seven se	egment Display				K	3		4			
8	Interfacing of Multiple Seven	segment Display				K	4		4			
9	Interfacing of DAC					K	4		4			
10	Interfacing of LCD					K	4		4			
11	Interfacing of Stepper motor					K	5		4			
12	Speed Control of DC motor					K	5		4			
13	Interfacing of temperature Se	nsor LM35				K	5		4			
	CO1: Understand the basic k	nowledge on basics	of PIC 1	nicro	conti	oller	s.		K1			
Course Outcome	CO2: Interpret a basic know perform a specific task	vledge about progra	amming	and s	syste	m co	ontrol	ntrol to K2				
	CO3: Illustrate knowledge ab	oout devices and bus	ses used	in em	nbedd	led s	ystem	s.	K3			

	CO4: Determine andDevelop various applications	programming skills in emb	edded systems for	K4							
	CO5:Acquire knowledge about	O5: Acquire knowledge about basic concepts of circuit emulators.									
	Learni	ng Resources									
Text	1.PIC Microcontroller ,Mazidi,	Muhammad Ali,Pearson									
Books	2. Designing Embedded System	ns with PIC Microcontrolle	ers Principles and ap	oplications –							
	Tim Wilmshurst.										
Reference	1.Programming 8 bit PIC microo	controller in C- Martin P. Ba	tes								
Books	2.Embedded Controller Hardwar	e Design - Ken Arnold									
Website	https://www.youtube.com/watch	?v=y6KivqGyaGI									
Link	https://www.youtube.com/watch	?v=hZNcFhMWBgA									
	https://www.youtube.com/watch	?v=AcvQCfrobxM									
L-Lecture	T-Tutorial	it									

B. Sc-Ele	B. Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards											
Course Code	C	Course Ti	itle		Course	Туре	Sem.	Hours	L	Т	Р	C
23M5UELP06	PI EMBEI	RACTIC. DDED S	AL: YSTEN	1S I	DS PRACTIC	C Cal - VI	V	3	-	-	3	3
					CO-PC) Mappin	g					
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
C01	L	М	S	М	М	М	L	S	S	М		
CO2	L	L	М	L	S	S	L	L	М	S		
CO3	М	М	L	S	L	S	М	М	L	L		
CO4	М	М	L	S	S	М	L	S	L	S		
CO5	S	S	М	S	S	S	S	S	М	S		
Level of Correlation between CO and PO		I	L-LOW	, ,		Μ	I-MEDIU	ЛМ	S	S-STRONG	ſ	
Tutorial Sched	ule		G	roup d	liscussion	, Lab Visi	t, Problei	n Solving	g, Brain Stor	rming & Qu	iiz	
Teaching and I	Learning	Method	s De	emons	stration,H	ands on T	raining a	nd Practic	al Sessions			
Assessment Me	ethods		O	bserva	tion, CIA	-I, CIA-II	and ESE	3				
Desi	igned By				Ver	ified By		Ap	proved By	Member S	ecret	ary
MR. I. BAI	LAKRIS	HNAN			MR.S. A	ARULMA	ANI		Dr.S.S	HAHITHA		





(Autonomous)

B. Sc-Ele	ctronics & Commu	nication Syllabus I	LOCF-CE	BCS with	effect fi	rom 2023	-2024 Onwa	rds
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С
23M6UELC07	PCB DESIGN AND FABRICATION	DSC THEORY – VII	VI	5	3	2	-	4
Objective	Understand process. Familiari (EDA) Tools.	the need for PCB ze Schematic and	Design ar layout de	nd steps in sign flow	volved using	in PCB I Electroni	Design and F ic Design A	abrication utomation
Unit		Course Co	ontent				Knowledge Levels	Sessions
I	Introduction to P Background and H Terminology in P (EDA) tools and co	CB Design: Definit listory of PCB-Type CB Design-Differe omparison.	ion and N s of PCB nt Electro	leed/Relev Classes of onic desig	vance of f PCB E gn autor	PCB- Design- mation	K2	12
п	PCB Design Proc involved in layout CAD-General des Artwork making Design Manufactu	ess: PCB Design Fl t design-Artwork ge ign factor for digita for Single-side-doul rability-Design-spec	low, Place eneration l and ana ole-side a cification s	ement and Methods log circui nd Multi- standards.	routing – manu ts-Layo layer B	Steps al and ut and coards-	K4	12
ш	Introduction to I fabrication of PC and multilayer-Et operations- stripp component assemb	PCB Fabrication a B-PCB Fabrication cching: chemical p ing, black oxide co bly processes	nd Assen techniqu principles pating an	ably: Step es-single, and me d solder	os invol double chanism masking	ved in sided Is-Post g-PCB	K4	12
IV	Transmission Lir lines and its effect Types of Transmi lines-Crosstalk co terminations-Minin mapping of design	be and Crosstalk: s-Significance of Tr ssion lines. Crossta ntrol in PCB desig mization of crosst	Transmiss cansmissic lk: The cr n parts-pl talk. The	ion Line: on line in cosstalk ir lanes-tracl rmal issue	Transn Board c 1 transn cs-conn ues: Tl	nission lesign- nission ectors- nermal	K2	12
V	PCB Board Desig Footprint Creation Board: An Introd Creation-Constrain Component Placen Guidelines-Copper * Current Trends	n using CAD Tool Schematic Preparation of Board D of Settings: DRC nents: Top and Botto Plan Creation-Gerb Study of Online Po	s: Introdu ation-Boar esign Env C entry-N om sides-J oer Genera CB Design	ction-Syn rd Design vironment Vet class PCB Rout ation. n tools	-Switch -Switch -Board and ing: Co	eation- ing to Shape Rules- mplete	K6	12
Course	CO1: Define and u	inderstand basic cor	cepts of F	PCB, trans	mission	line,	K1	
Outcome	CO2: Understand fabrication a	and apply the steps : nd assembly process	involved i s of PCB of	n schemat design.	ic, layo	ut,	K2	

	CO	CO3: Analyse the fabrication process of printed circuit boards. K3											
	CO	4: Eval	luate an	nd test a	PCB]	K4	
	CO	5: Desi	ign (sch	nematic	and la	yout) a	nd fabri	cate PC	B for sim	ple]	K5	
		enec	1113.		Le	earning	g Resou	rces				I	
Text Books	1. 2. 3. 4.	 C. Coombs, Printed Circuits Handbook, McGraw-Hill, 6 edition, 2007 V. Shukla, Signal Integrity for PCB Designers, Reference Designer, 2009 D. Brooks, Signal Integrity Issues and Printed Circuit Board Design, Prentice Hall, 2003 RS Khandpur, Printed Circuit Board, Tata McGraw Hill Education Pvt Ltd., New Delhi Jon Varteresian, Fabricating Printed Circuit Boards, Newnes, 2002 R. Tummala, Fundamentals of Microsystems Packaging, McGraw-Hill 2001 											
Books	1. 2.	R. Tur	nmala, l	n, raon Fundam	entals	of Mic	rosyster	ns Pack	aging, M	s, 2002 cGraw-H	ill 2001		
Website Link *Self Study	$ \begin{array}{c c} 1. \\ 2. \\ 3. \\ \hline 1. \\ 1. \\ 1. \\ \hline 1. \\ 1. \\ \hline 1. \\ 1. \\ \hline 1. \\ 1. \\ \hline 1. \\ 1. \\ 1. \\ \hline 1. \\ 1. \\ 1. \\ 1. \\ 1. \\ 1. \\ 1. \\ 1. \\$	R. Tummala, Fundamentals of Microsystems Packaging, McGraw-Hill 2001 https://www.youtube.com/watch?v=98S3484bOZ8 https://www.youtube.com/watch?v=Su0PIw5OaYQ https://www.youtube.com/watch?v=EHkixIgQN0k https://www.udemy.com/course/crash-course-electronics-and-pcb ign/?couponCode=ST9MT71624											
Material	desig	1. https://www.udemy.com/course/crash-course-electronics-and-pcb design/?couponCode=ST9MT71624 L-Lecture T-Tutorial P-Practical C-Credit											
B Sc _Fle	ctron	L-Lecture T-Tutorial P-Practical C-Credit											
Course Coo	le		ourse 7	Fitle		nabus ourse T	vne	Sem	Hours	L	T	Р	C
23M6UELC	07	PCB FAI	DESIG BRICA	N AND TION) TH	DSC EORY	– VII	VI	5	3	2	-	4
					-	CO-PC) Mapp	ing					
CO Numbe	er	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
C01		М	М	М	S	S	S	S	S	S	S		
CO2		L	М	S	М	S	S	М	S	S	М		
CO3		М	S	М	М	S	S	М	М	S	М		
CO4		М	L	М	М	М	S	S	М	S	S		
CO5		S	М	М	М	М	S	S	S	S	М		
Level of Correl between CO an	ation d PO]	L-LOW			N	I-MEDI	UM		S-S	STRONG	
Tutorial Sched	lule			Group	discu	ssion, L	.ab Visi	t, Proble	em Solvir	ng, Brain	Stormi	ng & Quiz	5
Teaching and	Learn	ing Me	ethods	Audio presen	Video tation) lecture	e, Chalk	and Bo	oard class	PPT Pre	sentatio	n and Vid	eo
Assessment M	Methods Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE												
Desi	gned	By			I	Verified	l By		A	pproved	By Me	mber Sec	retary
MR.S.SAT	HISH	ISHKUMAR MR.S.ARULMANI Dr.S.SHAHITHA											





(Autonomous)

B.Sc-Ele	B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards												
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	,	Р	С				
23M6UELC08	VLSI DESIGN AND VHDL PROGRAMMING	DSC THEORY –VII	VI	5	3	2	, ,	-	4				
Objective	To make the Stu Digital circuits with H	dents to learn abou DL, simulate and sy	ut the prin ynthesis.	nciple of [HDL b	ased o	desig	n approa	ch, model				
Unit		Course Cont	ent				Kno L	owledge evels	Sessions				
I	Elements of VHDL hardware abstraction architecture body de Declaration - Packag language elements – id		K1	10									
п	Behavioral Modelin process statements - v statements – Wait st statement – Loop s Assertion statement – statement – multiple p	g: Entity declaration ariable assignment atement – IF staten tatement – Exit s - Report statements rocess – postponed	on – arch statement ment – C tatement – More process	itecture de s – signal a case staten – Next s on signal	eclaratio assignm nent – stateme: assign	on – nents Null nt – ment		K4	14				
Ш	Data flow modeling signal assignment – Conditional signal as statement – The ur assertion statement – Structural modeling – Resolving signal val	: Concurrent signa - Delta delay rev signment statement affected value – Value of the signal. - Component declara ue – Example progr	1 assignn visited – x – Select Block s ation – Co rams.	nent stater Multiple ted signal tatement- omponent	nent ve driver assign Concu	ersus rs – ment rrent ation		K3	12				
IV	Advanced features in specification – Config functions – Direct ins Sub program overload value of parameters – design libraries – o visibility – attributes i	vHDL: Generics guration declaration tantiation – Incremend ding - operator ove package declaration rder of analysis – n VHDL.	 – configu 1 – Defau ental binc rloading 1 - packag implicit 	iration – co ilt rules – ling - Sub - signaturo ge body – o visibility	onfigura Conver progran es – de design f – exp	ation rsion ms – fault ile – olicit		K3	12				
V	Programming Exam and Full adder – Ha Multiplexers – De mu logic design procedu machine - Moor and M Modulo Counters.Imp and PLA (up to 4 vari chips . *Current Trends: St	ples and Implement alf and Full subtra- ultiplexers – Compa- res – state Diagra Mealy Model- VHD blementation of con- able)- Introduction to udy of Xilinx Sparta	entation: actor – E rator – Bo m – stat L code fo mbination to CPLDs an FPGAs	: Basic g Encoder – CD Adder e table – r Flip-flop al circuits - FPGAs	ates – decode -Seque finite s, Desig with and Cu	Half ers - ntial state gn of PAL stom		K4	12				

	CO1:	CO1: Understand the basic elements of VHDL. K1											
	CO2:	Illustrate	the var	ious m	odeling	styles of	VHDL]	K2		
Course Outcome	CO3 :	Apply 1 designs.	the pro	gramn	ning ski	lls in de	eveloping	code f	for logic	; 1	X3		
Outcome	CO4:	Analyze	the adva	anced	features	of VHLD	for VLS	I design	process]	K3		
	CO5:	Design a EPROM,	digital PAL, I	systen PLA	n using p	orogramm	able logi	c device	s such as	5	Χ4		
	_				Learnir	ng Resou	rces					•	
Text Books	1"Digital 2."VHDI	Design" Primer	M.Moi ' - Bhas	rris Ma ker J -	ano Mich Prentice	ael D Cil Hall Ind	etti Pears ia -2009	on Educ	ation 200	08			
	1."Digita	l Electro	nics wit	h PLD	Integrat	tion" Nige	el P. Cool	k, Prentie	ce Hall, 2	2000			
Reference	2."Progra	ummable	Logic I	Handbo	ook: PLI	D, CPLD,	and FPG	A" Ashc	ok K.Sha	rma, TN	/ Η.		
Books	3."Digita	3."Digital Logic Simulation and CPLD Programming with VHDL" Steve Waterman Prentice Hall, 2002											
	2002 https://nptel.ac.in/courses/117101058												
Website	https://on	linecours	ses.npte	l.ac.in	/noc19_0	cs73/prev	<u>iew</u>						
	https://np	tel.ac.in/	courses	/11710	08040								
*Self Study Material	https://ww	ww.xiliny	x.com/v	rideo/fj	pga/spart	tan-7-tech	mical-ove	erview.ht	tml				
	L-L	ecture	Т	-Tutor	ial P-P	ractical			C-C	redit			
B.Sc –Ele	ectronics a	and Con	nmunic	ation S	Syllabus	LOCF -	CBCS w	vith effec	t from 2	2023-20	24 Onw	ards	
Course Code	e (Course T	itle		Course	Type	Sem.	Hours	L	Т	Р	С	
	Course TitleCourse TypeSem.HoursLTPCVLSI DESIGN AND VHDLDSC TUTO DY JUVI532-4												
23M6UELC0	8 VLS	I DESIG VHDI OGRAM	N AND MING		DS THEOR	C Y –VII	VI	5	3	2	-	4	
23M6UELC0	8 PRO	I DESIG VHDI DGRAM	N AND _ MING		DS THEOR CO-P (C Y –VII O Mappi	VI	5	3	2	-	4	
23M6UELC0	8 VLS 8 PR(I DESIG VHDI OGRAM PO2	N AND MING PO3	PO4	DS THEOR CO-P PO5	C Y –VII O Mappi PSO1	VI ng PSO2	5 PSO3	3 PSO4	2 PSO5	-	4	
23M6UELC0 CO Number CO1	8 VLS 8 PRO PO1 L	I DESIG VHDI DGRAM PO2 M	N AND MING PO3 S	PO4	DS THEOR CO-PC PO5 L	C Y –VII O Mappi PSO1 S	VI ng PSO2 M	5 PSO3 S	3 PSO4 M	2 PSO5 L	-	4	
23M6UELC0 CO Number CO1 CO2	8 VLS PRO PO1 L M	I DESIG VHDI DGRAM PO2 M S	N AND MING PO3 S M	PO4 L S	DS THEOR CO-P PO5 L M	C Y –VII O Mappi PSO1 S M	VI ng PSO2 M M	5 PSO3 S S	3 PSO4 M M	2 PSO5 L L	-	4	
23M6UELC0 CO Number CO1 CO2 CO3	8 VLS PRO PO1 L M S	I DESIG VHDI OGRAM PO2 M S L	N AND MING PO3 S M S	PO4 L S S	DS THEOR CO-P PO5 L M S	C Y –VII O Mappi PSO1 S M L	VI ng PSO2 M M M S	5 PSO3 S S L	3 PSO4 M M S	2 PSO5 L L L	-	4	
23M6UELC0 CO Number CO1 CO2 CO3 CO4	8 VLS PRO PO1 L M S M	I DESIG VHDI DGRAM PO2 M S L S	N AND MING PO3 S M S M S M	PO4 L S S L	DS THEOR CO-P PO5 L M S M	C Y –VII O Mappi PSO1 S M L M	VI ng PSO2 M M M S S S	5 PSO3 S S L M	3 PSO4 M M S L	2 PSO5 L L L S	-	4	
23M6UELC0 CO Number CO1 CO2 CO3 CO4 CO5	8 VLS PRO PO1 L M S M L	I DESIG VHDI DGRAM PO2 M S L S M	N AND MING PO3 S M S M S M S	PO4 L S S L M	DS THEOR PO5 L M S M L L	C Y –VII O Mappi PSO1 S M L M S	VI ng PSO2 M M S S S M	5 PSO3 S S L M S	3 PSO4 M M S L M	2 PSO5 L L L S L	-	4	
23M6UELC0 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO	8 VLS PRO PO1 L M S M L	I DESIG VHDI DGRAM PO2 M S L S L S M	N AND MING PO3 S M S M S LOW	PO4 L S S L M	DS THEOR PO5 L M S M L	C Y –VII O Mappi PSO1 S M L M S	VI ng PSO2 M M S S S M -MEDIU	5 PSO3 S L M S M	3 PSO4 M M S L M	2 PSO5 L L L S S-ST	- TRONG	4	
23M6UELC0 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Sche	8 VLS PRO PO1 L M S M L L	I DESIG VHDI DGRAM PO2 M S L S M L-	N AND MING PO3 S M S M S LOW	PO4 L S S L M	DS THEOR PO5 L M S M L L	C Y –VII O Mappi PSO1 S M L M S M	VI ng PSO2 M M M S S S M -MEDIU	5 PSO3 S S L M S M	3 PSO4 M M S L M g, Brain	2 PSO5 L L L S S Stormin	- TRONG g & Qui	4 Z	
23M6UELCO CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Schee Teaching and	8 VLS PRO PO1 L M S M L L dule	I DESIG VHDI DGRAM PO2 M S L S M L-	N AND MING PO3 S M S M S M S LOW	PO4 L S L M oup dis dio Vic	DS THEOR PO5 L M S M L L cussion, deo lectu	C Y –VII O Mappi PSO1 S M L M S M Lab Visit re, Chalk	VI ng PSO2 M M S S S M -MEDIU	5 PSO3 S L M S M	3 PSO4 M M S L M g, Brain S PT Pres	2 PSO5 L L L S S Stormin entation	- TRONG g & Qui and Vio	4 z deo	
23M6UELCO CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Sche Teaching and Assessment N	8 VLS PRO PO1 L M S M L dule Learning Iethods	I DESIG VHDI DGRAM PO2 M S L S M L-	N AND MING PO3 S M S M S M S M S M S M S M S Cla	PO4 L S S L M oup dis dio Vic sentations sentations sentations	DS THEOR PO5 L M S M L L U u t, Unit T	C Y –VII O Mappi PSO1 S M L S M Lab Visit re, Chalk	VI ng PSO2 M M M S S S M -MEDIU	5 PSO3 S S L M S M n Solving rd class I	3 PSO4 M M S L M g, Brain S PT Pres A-II and	2 PSO5 L L L S S Stormin entation ESE	- TRONG g & Qui and Vio	4 z leo	
23M6UELCO CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and PO Tutorial Sche Teaching and Assessment M Des	8 VLS PRO PO1 L M S M L dule dule Learning igned By	I DESIG VHDI DGRAM PO2 M S L S M L-	N AND MING PO3 S M S M S M S M S M S Cla	PO4 L S S L M oup dis dio Vic sentations ss Test	DS THEOR PO5 L M S M L L Cussion, deo lectu on t, Unit T Verif	C Y –VII O Mappi PSO1 S M L S M Lab Visit re, Chalk est, Assig	VI ng PSO2 M M M S S S M M -MEDIU , Problem and Boar gnment, Q	5 PSO3 S S L M S M n Solving rd class I	3 PSO4 M M S L M G, Brain S PT Pres A-II and	2 PSO5 L L L S S Stormin entation I ESE By Me	- TRONG g & Qui and Vio	4 z deo	





(Autonomous)

B.Sc-Ele	ectronics & Communication	n Syllabus LOCF-C	BCS with	effect from	n 2023	-2024	Onw	ards		
Course Code	Course Title	Course Type	Sem	Hours	L	Т	Р	С		
23M6UELP06	PRACTICAL : VHDL PROGRAMMING	DSC PRACTICAL - VI	VI	3	-	-	3	3		
Objective	To equip students using VHDL, and to provid and industry practices	with the skills to d de a comprehensive u	esign, sin understanc	nulate, and ling of VH	impler DL syı	ment ntax, r	digita netho	l circuits dologies,		
S.No.	List of Experime	ents / Programs (An	y 10)		Know Lev	ledge els	5	Sessions		
1	Implementation of Universa	al Gates using VHDL	code.		K.	3		4		
2	Implementation of Boolean	function using VHE	DL code		K.	3		4		
3	Implementation of Halfadd	ler / Full adder using	VHDL co	de.	K.	3		4		
4	Implementation of Half / Fu	Ill Subtractor using V	HDL cod	e.	K.	3		4		
5	Design of 4 Bit binary Add	er using VHDL Code			K.	3		4		
6	Design of binary Comparate	or using VHDL Code	.		K.	3	4			
7	Implementation of Encoder	/ Decoder using VHI	DL Code.		K.	3	4			
8	Implementation of MUX / I	DEMUX using VHD	L Code.		K.	3		4		
9	Design of RS / JK Flip flop	using VHDL Code.			K.	3		4		
10	Design of D / T Flip flop u	sing VHDL Code.			K.	3		4		
11	Design of JKMS Flip flop u	using VHDL Code.			K.	3		4		
12	Design of universal shift rea	gister using VHDL co	ode		K.	3	4			
13	Design of Modulo 'n' Cour	ter and implement us	sing VHD	L.	K	4				
	CO1: Understand the basic	programming princip	ples of VH	IDL				K1		
Course Outcome	CO2: Analyze the error har	ndling procedures in `	VHDL					K2		
	CO3: Apply the knowledg	e of VHDL to develo	p logic cii	cuits				K3		

	CO	O4: Use the various data types and objects of VHDL K4												
	CO	5: Desig	n the di	gital lo	gic circu	its using `	VHDL				K	5		
					Learnii	ng Resou	rces				I			
Text Books	5	1.	VHDL	progra	amming b	oy Examp	les by Dı	ıklaas L	Berry					
Referen Book	ice s	1.	IEEE S	Standar	d VHDL	Languag	e Referer	nce Man	ual – Univers	sity of Chi	cago			
Websit Link	te	<u>htt</u>	os://ww	w.tutor	rialspoint	.com/vlsi	_design/v	vlsi_des	ign_vhdl_intr	oduction.ł	<u>ıtm</u>			
L-1	Lecture T-Tutorial P-Practical C-Credit													
B.Sc –Elec	ctronics :	ics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards												
Course Code	C	Course TitleCourse TypeSem.HoursLTPC												
23M6UELP06	PRAC PRC	CTICAL	: VHD MING		SC PRA	CTICAL I	VI	3	-	-	3	3		
			1	T	CO-P	O Mappi	ng	1						
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5				
CO1	L	М	S	L	L	S	М	S	М	L				
CO2	М	S	М	S	М	М	М	S	М	L				
CO3	S	L	S	S	S	L	S	L	S	L				
CO4	М	S	М	L	М	М	S	М	L	S				
CO5	L	М	S	М	L	S	М	S	М	L				
Level of Correlation between CO and PO		Ι	L-LOW			М	-MEDIU	М		S-STRON	G			
Tutorial Sched	ule			Group	p discuss	ion, Lab V	Visit, Pro	blem So	olving, Brain	Storming of	& Quiz			
Teaching and I	Learning	g Metho	ds	Audio preser	o Video l ntation	ecture, Cl	halk and l	Board c	lass PPT Pres	sentation a	nd Vid	eo		
Assessment Me	t Methods Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE													
De	signed B	y			V	erified B	У		Approved B	y Membe	r Secre	etary		
MR. S.	. SANTH	IOSH			MR.S	.ARULN	IANI		Dr.S.	SHAHIT	HA			





(Autonomous) Autonomous) (Autonomous) Rasipuram - 637408.

List of Foundation Course (FC) offered by the B.Sc., Electronics and Communication SYLLABUS -LOCF-CBCS Pattern EFFECTIVE FROM THE ACADEMIC YEAR 2023-2024 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	Ι	23M1UELFC1	APPLIED ELECTRIC CIRCUITS





(Autonomous)

B. Sc –Ele	ctronics and Communicati	on Syllabus LOCI	F - CBC	S with eff	ect from	n 2023	3-2024 Onwa	ırds
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С
23M1UELFC1	APPLIED ELECTRIC CIRCUITS	FOUNDATION COURSE	Ι	2	2	-	-	2
Objective	To remember the s by which understand the va	tudents about vario rious circuit analys	ous electr sis metho	onic comp ods and th	oonents, eorems.	DC ai	nd AC funda	mentals,
Unit		Course Conten	t			-	Knowledge Levels	Sessions
I	Circuit Components: Res governing the Resistance- Resistors - Energy Stored Series and Parallel connect	istors - Capacitors Capacitance - In in a Capacitor - E ions- Simple Probl	- Induct nductanc nergy Sto ems.	ors – Typ e –Color ored in an	es - Fac Coding Inducto	tors g of or –	K2	4
П	DC Fundamentals: Po Kirchhoff's Laws-Voltage combinations of Sources- Simple Problems.	tential Difference Source- Current Voltage Division	e-current Source Rule-Cu	-Power-O -Series a rrent Div	hms L nd Para ision R	aw- allel ule-	K3	5
III	Theorems: Super Positio Theorem – Millman's The Star and Delta Connection-	n Theorem – The corem - Maximum Conversion - Sim	evenin's 1 Power ple Probl	Theorem Transfer ems.	– Nort Theorer	on's n –	K4	5
IV	AC Fundamentals: Repr Waveforms – Peak Value Value – Period and Freque Reactive Power – Capacit Problems.	resentation of Sin – Peak to Peak Vancy Measurement tive Reactance – 1	usoidal alue – A - Power I Inductive	and Non verage Va Factor - R e Reactan	Sinuso Ilue – R eal Pow ce –Sin	idal MS er – nple	K4	5
V	Resonant Circuits: AC to Series circuit - RC Series C - RLC in Series Circuit Parallel Resonance - Simpl	through Resistor - Circuit - RL Paralle - RLC Parallel C e Problems.	- Capaci l Circuit ircuits –	tor – Ind – RC Par Series R	uctor - allel Cir Resonanc	RL cuit ce -	К3	5
	CO1: Recite and restate the	e basic electrical pa	arameters	s and their	units		K1	
	CO2: Summarize various l	Laws and theorems	of circu	it simplifi	cation.		K2	
Course Outcome	CO3: Perform the circuit s	implification using	various	circuit the	eorems.		K3	
	CO4: Simplify the various	problems and find	the solut	tions to it.			K4	
	CO5: Categorize and analy	ze the different A	C and DC	Circuits.			K4	
	·	Learning Reso	ources			1		

Text Books	1. 4 2. 1 3. 5	A. Su 2017. R.S.S S. Sal	dhakar edha - livahan	[•] , Shyan "A Tex an,S. P	mmoh kt Boc ravee	nan, S. ok of Z en Kur	.Palli - Applie nar – '	– "Ci ed Ele "Circ	rcuits and ectronics' suit Theor	d Netwo ', S.Chai ry" –S.C	rks: Anal nd and Co Chand	ysis and	Synthes Ltd., 201	is", 0.	5th Edition -
Reference Books	1. 1 2. 1 3. 5	B.L.T Berna S. Sal	Theraja, ard Gro livahan	, "Basio ob, "Basionan, N.	c Elec sic Ele Suresl	tronic ectron h Kur	s-Soli ics" – nar, "	id Sta - McC Elect	ate Devic Graw Hill cronic De	es",S.Ch vices and	and Com	ipany s" —4th E	Edition 2	017	
Website Link	https https https	://onl ://npt ://npt	inecou el.ac.ir el.ac.ir	rses.np 1/cours 1/cours	tel.ac. es/108 es/108	.in/no 8/104/ 8/101/	c22_e /10810 /10810	e93/p)4139)1091	preview 9/ 1/						
		L	-Lectu	re		T-Tu	torial	P-P	ractical			C-C	redit		
B.Sc.	B.Sc.–Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards														
Course Co	Course Code Course Title Course Type Sem. Hours L T P C														
23M1UELI	ELFC1APPLIED ELECTRIC CIRCUITSFOUNDATION COURSEI22-2														
							CO)-PO	Mapping	g					
CO Nu	mber		PO1	PO2	PO3	B PC)4 P	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO	01		М	L	L	N	1	М	М	S	М	L	М		
CO	02		S	М	L	N	1	М	М	S	S	L	М		
CO	93		S	М	L	N	1	М	М	S	S	L	М		
CO	94		S	М	L	N	1	М	М	S	S	L	М		
CO	95		S	М	L	N	1	М	М	S	S	L	М		
Level of Co between Co	orrelat O and	ion PO			L-LO	W	·		M	-MEDIU	M		S-ST	RON	łG
Tutorial Sc	hedul	e			G	broup	discus	ssion	, Lab Visi	it, Proble	em Solvir	ng, Brain	stormin	ıg &	Quiz
Teaching a	nd Le	arnir	ng Met	hods	A aı	udio nd Vi	Video deo pr	lecturesen	ire, Chall tation	k and Bo	ard class	, Assigni	ment, Po	oster	Presentation
Assessment	Assessment Methods Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE														
Designed By Verified By Approved By Member Secretary									Secretary						
MR.S	.SATI	HISH	KUM	AR			MR.	S.AF	RULMAN	NI		Dr.	S.SHAH	IITI	IA





(Autonomous) Harr MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(Autonomous)

Rasipuram – 637408

List of Elective Course (DSE) Details for B.Sc., Electronics and Communication SYLLABUS - LOCF-CBCS Pattern EFFECTIVE FROM THE ACADEMIC YEAR 2023-2024 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	V	23M5UELE01	NETWORK COMMUNICATION AND SECURITY
2	V	23M5UELE02	FUNDAMENTALS OF IOT AND APPLICATIONS
3	V	23M5UELE03	ARTIFICIAL INTELLIGENCE
4	VI	23M6UELE04	ADVANCED COMMUNICATION SYSTEMS
5	VI	23M6UELE05	ROBOTICS AND AUTOMATION
6	VI	23M6UELE06	MEDICAL ELECTRONICS





(Autonomous)

B.Sc –Elec	tronics and Communication Syl	labus LOCF - C	BCS with	effect from	n 202	3-2024 On	wards					
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С				
23M5UELE01	NETWORK COMMUNICATION AND SECURITY	DSE I	V	5	3	2	-	4				
Objective	To provide students wi principles, protocols, and pract secure network systems.	th an in-depth un tices, and to equi	derstandin p them wi	g of netw th the skil	ork c lls to	ommunica design and	tion se 1 imple	curity ement				
Unit	Со	urse Content				Knowledg Levels	^{je} Se	ssions				
I	Transmission Methods: Digit Rate - Analog Signal Digit Communication – Asynchron Simplex – Half Duplex - Full E Types of Multiplexing.	tal Signal Analog tal Transmission ous & Synchror Duplex – Multiple:	g Transmis – Paral lous Com xing - De-1	ssion – B lel & Se municatior multiplexin	aud erial 1 – 1g -	К3		12				
II	Network Topologies: Mesh To – Ring – Bus – Hybrid – Bas Internet Topology – Architectur	pology – Star To sics of Switching re of an ISP – Log	pology – T – Router ical Types	ree Topole & Routin of Topolo	ogy g – gy.	K2		12				
III	Network Protocols: OSI Mod Network Layer – Transport Lay Application Layer – Overview of	el – Physical Lay /er – Session Laye of Network Protoc	ver – Data er – Present cols.	Link Laye tation Laye	er – er –	К3		10				
IV	LAN Topologies: Introduction Fast LANS - Nonstandard LAN Token Passing Networks – FDI	– LAN Hardware NS – Extending L DI – MAN – WAN	– Implem ANS – Vi J.	enting LA rtual LAN	N – S –	K3		11				
V	Internet access & network set Leased lines – DSL - Cable Me & RS-449 Interface – SONET. Network Security: Introduction – Virtual Private Network-Cryp *Current Trends: Wireless Set	ecurity: Introduct odems – DTE – I – Types of Comp otography. nsor Networking	ion – Dial DCE Interf puter Attac	up Acces ace – RS- eks – Firev	ss – 232 vall	K5		15				
	CO1: Identify the components	associated with Tr	ansmission	n methods.		K1						
	CO2: Understand the compl switching and routing tec	letenetwork archi hnologies.	tecture, T	opology	and	К2						
Course Outcome	CO3: Illustrate the operatio their applications.	CO3: Illustrate the operations of various electronic circuits and K3 their applications.										
	CO4: Demonstrate the vari management skills	ous networks p	protocols	and netw	ork	K4						
	CO5: Evaluate theissues in provide multimedia applications a	roviding Quality- and internet securi	Of-Service ty	e for netw	ork	K5						

Learning Resources															
Text Books	1. D 2. D 3. A)ata)ata Idva	communic Communi nced Com	ation cation puter	and ne 1 & Net Netwo	twoi worl rkinį	rking ks - 2 g (Co	g– 2nd I Achyut oncepts	Edition .S. Go and A	-Behro dbole & pplicati	uza Foro z Atul Ka ons) - Sa	uzan. 1hate – T tish Jain	MH 2EI – BPB)	
Reference Books	1. С 2 Н	ˈomj [iʊh	puter Netw speed netv	vorks- vorki	Andrev	vs.T	anen mets	baum. -Willia	m Stall	ings					
Website	<u>https</u>	://o	nlinecours	es.np	tel.ac.in	/ <u>noc</u>	19_0	cs84/pr	eview						
Link *Self	<u>https</u>	://a1	rchive.npte	el.ac.1	<u>n/cours</u>	es/10	06/1	05/106	<u>105191</u>	<u>/</u>					
Study Material	<u>https</u>	://w	ww.geeks	forge	eks.org	wire	eless	-sensor	<u>-netwo</u>	rk-wsn/	-				
			L-Lecture			T	-Tut	orial		P-P	ractical		0	C-Credit	
B.Sc –F	B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards														
Course Co	se Code Course Title Course Type Sem. Hours L T P C														
23M5UELE01NETWORK COMMUNICATION AND SECURITYDSE IV532-4															
	CO-PO Mapping														
CO Nun	nber		PO1	PO	2 PO3	B P	04	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1			Μ	S	Μ		S	S	М	S	S	М	S		
CO2	2		Μ	Μ	Μ		S	М	М	S	S	М	S		
CO3	5		Μ	Μ	М		М	М	S	S	S	М	S		
CO4	ļ		М	L	М		L	М	S	S	S	М	S		
CO5	5		М	Μ	М		М	М	М	S	М	М	S		
Level of Con between CO	rrelation and F	on PO			L-LOW				M	I-MEDI	UM		S-STI	RONG	
Tuto	orial S	che	dule	(Group d	iscu	ssio	n, Lab V	Visit, P	roblem	Solving,	Brain St	corming	& Quiz	
Teaching an	d Lea	rniı	ng Metho	ds	Audio V and Vid	'ideo eo p	o lec resei	ture, Cl ntation	halk an	d Board	l class, A	ssignme	nt, Post	er Presen	tation
Assess	sment	Me	thods	(Class To	est, I	Unit	Test, A	Assignr	nent, Cl	IA-I, CIA	-II and I	ESE		
D	esigne	ed B	y			V	erifi	ed By			Appro	ved By I	Member	Secreta	ry
Mr. S. S.	Mr. S. SATHISHKUMAR Mr. S. ARULMANI DR.S.SHAHITHA														





(Autonomous)

B.Sc –El	B.Sc – Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards											
Course Code	Course Title	Course Type	Sem.	Hours	Ι		Т	Р	С			
23M5UELE02	FUNDAMENTALS OF IOT AND APPLICATIONS	DSE II	V	5	3	3	2	-	4			
Objective	To acquire the basic know on its application.	wledge of stude	ents in Interne	et of Thing	s and	l desi	gn min	i project	s based			
Unit	Co	urse Content				Kno L	wledg evels	e Se	ssions			
Ι	Fundamentals of IoT: Intro IoT, IoT Architectures, Phys Technologies in IoT, Histor Identifiers in IoT, About the M2M.	Fundamentals of IoT: Introduction, Definitions & Characteristic oT, IoT Architectures, Physical & Logical Design of IoT, Enab Sechnologies in IoT, History of IoT, About Things in IoT, dentifiers in IoT, About the Internet in IoT, IoT frameworks, IoT M2M. Sensors Networks: Definition, Types of Sensors, Types of Actuator										
п	Sensors Networks: Definitio Examples and Working, IoT Board Types, RaspberrPi D components, Wireless Senso node, Connecting Nodes, Netw	n, Types of Ser Development revelopment K r Networks: H working Nodes	nsors, Types Boards: Ardu it, RFID Pr listory and C , WSN and Ic	of Actuato uinoIDE a inciples a Context, T oT.	rs, nd nd 'he		K3		12			
ш	Wireless Technologies for IEEE802.15.4, Zigbee, HART IP Based Protocols for Io CoAP, MQTT-Edge connectiv	IoT: WPAN C, NFC, Z-Way T IPv6, 6LowP vity and protoco	Technologi ve, BLE, Bac PAN, RPL, RI	ies for Io net, Modbu EST, AMP	oT: us. Q,		K3		12			
IV	Data Handling & Analytics: Characteristics of Bigdata, Da Data acquisition, Data Storag to data Analytics, Types of analytics and applications.	Introduction ata handling Te ge, Introduction Data analytics	, Bigdata, Ty echnologies, l 1 to Hadoop. , Local Anal	ypes of da Flow of da Introduction lytics, Clore	ta, ta, on ud		K4		12			
V	 Applications of IoT: Home A Management, Logistics, Agri IoT, Legal challenges, IoT Protection. *Current Trends: LoRaWAN 	Automation, Sr culture, Health design Ethic N Technology	nart Cities, E 1 and Lifesty cs, IoTin En	nergy, Ret le, Industr nvironmen	ail ial tal		K3		12			
	CO1: Recognize and understa And layer	re		K1								
Course	CO2: Understand the concept	of sensor netw	ork				K2					
Outcome	CO3: Demonstrate the design	procedures win	reless access	technologi	es		K3					
	CO4: Simplify the various da	ta handling pro	blems			K4						

	CO5: Categorize and ana	lyze the application	as of IOT	K4								
		Learning R	esources									
TextBook s	 Vijay Madisetti an Approach)",1stEdition HakimaChaouchi,—"T 7, Wiley Publications Olivier Hersent, Dav Applications and Prot 	d Arshdeep Bal n,VPT,2014. TheInternetofThings id Boswarthick, a ocols", Wiley Publ	hga, — "Internet of ConnectingObjectstotheWo and Omar Elloumi,—"The ications	Things (A eb"ISBN:978-1 e Internet of	Hands -on- - 84821-140- Things: Key							
Reference Books	1. Pethuru Raj and A Platforms, and Use Ca	nupama C.Raman ases", CRC Press	, "The Internet of Thing	gs :Enabling	Fechnologies,							
Website Link	https://onlinecourses.npte	el.ac.in/noc24_cs11	5/preview									
*Self Study Material	https://www.youtube.com	https://www.youtube.com/watch?v=Bsue0PzNRDU										
	L-Lecture	T-Tutorial	P-Practical	C-	Credit							

B.Sc –El	B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards													
Course Code	С	ourse Tit	le		Course	е Туре		Sem.	Hour	S	L	Т	Р	С
23M5UELE02	FUNDAN AND A	MENTALS	S OF ΙΟ ΓΙΟΝS	T	DS	E II		V	5		3	2	-	4
				(CO-PO M	apping								
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PS	SO2	PSO3]	PSO4	PSO	5	
CO1	S	S	L	S	S	М		S	S		М	S		
CO2	S	М	М		S	S		М	S					
CO3	S	М	М	М	S		S	S		М	S			
CO4	S	L	М	S		S	S		М	S				
CO5	S	М	L	М	М	М		S	М		М	S		
Level of Correlation between CO and PO		L-I	LOW		M-MEDIUM S-STRONG						NG			
Tutorial Sche	dule		Gro	oup disc	cussion, L	ab Visit,	Pro	oblem	Solving,	Bra	ain Sto	rming &	Quiz	Z
Teaching and	Learning I	Methods	Au Pre	dio Vid sentatio	eo lecture on and Vie	e, Chalk a deo prese	and enta	Board ation	l class, A	ssig	gnment	, Poster		
Assessment N	lethods		Cla	ss Test	, Unit Tes	st, Assig	nm	ent, C	IA-I, CIA	-II	and ES	SE		
De	esigned By				Verifi	ed By			App	rov	ed By	Membe	r Sec	retary
MR. I. B	MR. I. BALAKRISHNAN				IR. S. AF	RULMA	NI			DR.S.SHAHITHA				





(Autonomous)

B.Sc –Elec	tronics and Communic	ation Syllabus LOCF -	CBCS wi	ith effect	fror	n 2023-2	2024 Onw	ards			
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С			
23M5UELE03	ARTIFICIAL INTELLIGENCE	DSE III	V	5	3	2	-	4			
Objective	To introduce intelligence, and to eq solve real-world proble	e students to the four uip them with the skills ems.	ndational to develog	concepts p and app	s ar oly A	nd techn Al algori	niques of thms and	artificial models to			
Unit		Course Content				Kı	nowledge Levels	Sessions			
I	Basics of Artificial In The foundation of <i>L</i> Environments - Conc Structure of Agents.	Basics of Artificial Intelligence: Introduction to AI – The History of AI– The foundation of AI- Risk and Benefits of AI - Agents and Environments - Concept of rationality - Nature of Environments - Structure of Agents. Problem Solving: Problem Solving Agents – Search Algorithms –									
п	Problem Solving: P Uninformed Search Str Heuristic Functions - Search in Continuous Search in Partially Obs Unknown Environmen	roblem Solving Agents rategies – Informed (Heu Local Search and Optin Space – Search With No servable Environments – ts.	s –Searcl uristic) Se nization F on-Determ Online Se	h Algori arch Stra Problems iinistic Age earch Age	thms tegie - Lo ction ents	s – ss – ocal ss – and	K4	12			
Ш	Adversarial search a Games –Alpha-Beta Games –Partially Ob Algorithms	nd Games: Game theo Search – Monte-Carlo servable Games – Lin	ry –Optir Tree Sea nitation o	nal Decis arch –Sto f Game	sions ocha Sea	in stic rch	K3	12			
IV	Logical Agents: Known Propositional Theorem – Agents Based on Pro	owledge-based Agents Proving -Effective Prop positional Logic.	- Propos positional	sitional I Model C	Logi heck	c - ing	K5	12			
V	Knowledge Represent engineering –Categorie Logic –Reasoning Sy Information Classical Planning –A Planning –Hierarchica Schedule, and Resourc *Current Trends: Op	ntation & Automated es and Objects –Events – ystems for Categories Algorithms for Classical Il Planning –Non-Deter es –Analysis Of Planning en Source AI Tools	I Planni Mental O –Reasonir Planning ministic I g Approac	ng: Onto bjects and ng with –Heuris Domains bhes.	olog l Mo Defa tics –Ti	ical dal nult for me,	K4	12			
	CO1: Define the conce	ept of Artificial Intelliger	nce.				K1				
Course	CO2: Understand and	solving the problems					K2				
Outcome	CO3: Apply AI technic systems.	ques to real-world proble	ems to dev	elop inte	llige	nt	K3				
	CO4: Illustrate the AI	techniques					K4				

	CO5: Evaluate Using	g Predicate Logic.			K5				
		Learning Re	esources						
Text Books	1. Stuart Russel and Pearson Education,	Peter Norvig, "Artific 2021.	ial Intelligence: A Mode	rn App	proach", Fourtl	h Edition,			
Reference Books	 1. Dan W. Patterso 2. 2Kevin Night, Elai 3. Patrick H. Winston 	n, "Introduction to AI ne Rich, and Nair B., ' , "Artificial Intelligend	and ES", Pearson Educat 'Artificial Intelligence", N ce", Third edition, Pearson	ion, 20 McGrav n Editio	07 w Hill, 2008 on, 2006				
Website Link	 <u>https://onlinecourse</u> <u>https://onlinecourse</u> 	es.nptel.ac.in/noc21_cs es.nptel.ac.in/noc21_cs	s42/preview s79/preview						
Text Books	Text 2. Stuart Russel and Peter Norvig, "Artificial Intelligence: A Modern Approach", Fourth Edition, Pearson Education, 2021.								

B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards												
Course Code	С	ourse T	itle		Course	туре	Sem.	Hours	L	Т	Р	С
23M5UELE03	Al INT	RTIFIC ELLIG	IAL ENCE		DSE	L III	V	5	3	2	-	4
					CO-PC) Mappi	ng					
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	S	S	L	S	S	М	S	S	S	S		
CO2	S	S	L	S	М	S	М	S	S	М		
CO3	S	М	М	М	L	S	S	S	S	S		
CO4	S	L	L	М	М	S	S	S	М	М		
CO5	S	М	L	М	S	S	S	М	S	S		
Level of Correlation between CO and PO		• •	L-LOW	T		М	-MEDIU	JM		S-STR	ONG	
Tutorial Schedule			Gro	up disc	cussion,	Lab Vis	it, Proble	em Solvi	ng, Brair	stormin	g & Quiz	
Teaching and Lear	ning M	lethods	Aud Pres	io Vid entatio	eo lectu on and V	ire, Chal /ideo pre	k and Bo esentation	ard class	, Assign	ment, Po	ster	
Assessment Metho	ds		Clas	ss Test	, Unit T	est, Ass	ignment,	, CIA-I, O	CIA-II ar	nd ESE		
Designed	Designed By					ied By		Approved By Member Secretary				etary
MR. S. SAN	THOS	Ħ		M	R. S. A	RULMA	NI		DR	.S.SHAH	IITHA	





(Autonomous)

B.Sc –Electro	onics and Communication Syllabus	s LOCF -	CBCS with effe	ct from 2	2023	8-2024	Onwa	ards	
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р		С
23M6UELE04	ADVANCED COMMUNICATION SYSTEMS	DSE IV	VI	5	3	2	-		4
Objective	To understand principles of I system and Digital codes and to lea	Radar, Nav Irn Error d	vigation aids. Stu etection and corr	dy basic ection co	Dig: des.	ital co	mmuni	icatio	n
Unit	Cours	e Content	;			Knov Leve	wledge ls	Sess	ions
I	RADAR and Navigational Aids: Radar Range Equation – Factors I Pulsed Radar System – Block Dia PPI Display - Instrument Land Approach System.	Basic Ra Influencin gram – D ling Syst	dar System– Ap g Maximum Rai isplay Methods- em – Ground	plication nge – Ba A - Sco Control	s – isic pe, led	K	.3	1	2
П	Basics of Digital Communicati Digital Communication System - H Transmission Circuits -Bandwidth Noise - Crosstalk – Distortion. A Detection Codes – Parity Check Correction Codes – Retransmission Hamming Code.	on and Block Diag Requiren SCII Cod SCII Cod Codes – on- Forwa	Codes: Basic E gram-Characteris nent – Speed - I le – EBCDIC C Redundant Co rd Error Correct	lements tics of D Baud Rat ode - Er des - Er ing Code	Of ata te - tror tror te -	К	3	1	2
Ш	Optical Communication: Optical Diagram – Advantages–Ray Theo Fibers – Step Index Fibers, Graded Attenuation and Losses - Optical LASER – Principles – Optical I Connectors - Splices – Couplers – – Optical Receiver – Block Diag Applications of OFC.	al Comm ry – Sing Index Fib Il Sources Detectors Optical T ram - Ap	unication System le Mode Fibers, ers (Basic Conce s – LED - Ser – PIN And API ransmitter – Blo plication Of Op	n – Blo Multimo epts Only niconduc D Diode ck Diagr tical Fib	bock bode (r) - (r) -	К	.3	1	2
IV	Satellite Communication: Satell launching orbits – types - Ge Advantages – Apogee – Perigee eclipse of satellite - Parabolic r Power supply- Attitude control- sta C subsystem – Antenna subsystem earth station - Satellite mobile serv	ite system ostationary - Active a reflector a tion keepi n. Block c ices - Basi	: Kepler's laws y synchronous and passive satel antenna –cassega ng – Transponde liagram of Trans cs of GPS	– orbits satellites llite - Ea rainanten rrs – TT a mit rece	s – arth na. and ive	К	3	1	2
V	Mobile Communication and M telephone– fundamental concepts – - frequency reuse – Interference – Channel Interference – Improvin systems - cell splitting – sectoring blue tooth technology. TDMA, FD	ultiple A - Simplifie - Co-chan g coverag g – Roami MA, CDM	ccess technique ed Cellular teleph nel Interference ge and capacity ng and Handoff IA. Digital cellul	es: Cellu none syst – Adjac in cellu – Basics lar system	ilar em ent ilar of n –	K	4	1	2

	GSM services -	GSM services - GSM System Architecture – Basics of GPRS.											
	CO1. Recall the	comm	unicatio	n syst	ems					K1			
	CO2 : Discuss the	ne digit	al comm	ninica [,]	tion pri	ncinles a	nd Code	25		K2			
	CO3: Calculate	the var	ious fre	auency	v ranges	and ana	lvze the						
Course	performat	ice of c	ommun	icatior	svsten	IS.				K3			
Outcome	CO4: Describe t	he Para	meters a	and op	tical Fil	per Com	municat	ion syste	em				
	concepts.			F				j		K4			
	CO5: Evaluate	the Mol	oile com	nmunic	ation a	nd satelli	ite multi	ple acce	ss	17.5			
	technique	s.						1		КS			
	· · · · · ·		Lea	arning	Resou	rces							
	1. Radar and Navigation Aids ", Scholnik, Tata McGraw Hill.1st Edit												
Text	2. Electronic co	tion - Tat	a McO	Graw	Hill.								
Books	3. Optical fiber	raw Hill	- 200	0									
	4. Satellite con	nmunica	ation - E	Dr. D.(C. Agarv	val - Thi	rd Editi	on - Kha	ınna publ	ishers			
	1. Electronic C	ommur	nications	s syste	ems - Fu	ındamen	ntals through	ough Ac	lvanced -	Way	ne T	omasi –	
Reference	Fifth Edition	1 - Pears	son Edu	cation	- 2005					_			
Books	2. Satellite com	munica	ation, D	r. D.C	. Agarw	al - Thir	d Editio	n - Kha	nna publi	shers			
	3. Microwave a	and Rad	lar Engi	neerin	g", N. F	ulkarnı	umesh p	publicati	on, 2nd e	d			
Website Link	https://onlinecou	urses.np	tel.ac.ir	n/noc2	2_ee114	4/previev	<u>N</u>						
*Self Study	https://www.tute	orialspo	int.com	/lte/lte	netwo	rk archi	tecture.l	ntm					
Material	I. Lestur	•		Г Тале	_ 	_	D Due et			C Credit			
	L-Lectur		P-Prace		rear								
BSc Floctre	nics and Comm	OCF	CRCS	with off	oct from	2023 20	24 0		n vde				
B.Sc –Electro	onics and Comm	unicati	on Sylla	abus I	OCF -	CBCS v	with eff	ect from	2023-20	24 O	nwar	rds	
B.Sc –Electro Course Code	onics and Comm Course	<mark>unicati</mark> • Title	on Sylla	abus I Co T	<mark>.OCF -</mark> ourse ype	CBCS v Sem.	with effe	ect from	L	24 O	nwar P	rds C	
B.Sc –Electro Course Code 23M6UELE04	onics and Comm Course ADVA	unicati Title	on Sylla	abus I Co T	OCF - ourse ype DSE	CBCS v Sem. VI	with effe	ect from urs	2023-20 L 3	24 O T 2	nwar P	rds C	
B.Sc –Electro Course Code 23M6UELE04	onics and Comm Course ADV COMMUNICA	unicati Title ANCED TION S	on Sylla SYSTEN	Abus I Co T MS	OCF - ourse ype DSE IV	CBCS v Sem. VI	with effe	ect from urs	2023-20 L 3	24 O T 2	nwan P -	rds C 4	
B.Sc –Electro Course Code 23M6UELE04	ADVA COMMUNICA	unicati Title ANCED TION S	on Sylla D SYSTEN	Abus I Co T MS O-PO	OCF - ourse ype DSE IV Mappi	CBCS N Sem. VI	Ho	ect from urs	L 3	24 O T 2	nwai P -	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number	ADVA COMMUNICA	unicati Title ANCED TION S PO2	on Syll: SYSTEN PO3	Abus I Co T MS O-PO PO4	OCF - ourse ype DSE IV Mappi PO5	CBCS v Sem. VI ng PSO1	PSO2	ect from urs 5 PSO3	2023-20 L 3 PSO4	24 O T 2 PSC	nwai P - 05	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1	ADVA COMMUNICA PO1 M	<pre>unicati Title ANCED TION S PO2 M</pre>	on Syll: SYSTEN C PO3 S	Abus I Co T MS O-PO PO4 M	JOCF - ourse ype DSE IV Mappi PO5 M	CBCS v Sem. VI ng PSO1 L	with effe Ho F PSO2 M	ect from urs 5 PSO3 S	2023-20 L 3 PSO4 M	24 O T 2 PSC M	P -)5	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2	ADVA COMMUNICA PO1 M M	unicati Title ANCEE TION S PO2 M S	on Sylla SYSTEM PO3 S M	Abus I Co T MS O-PO PO4 M M	JOCF - ourse ype DSE IV Mappi PO5 M M	CBCS v Sem. VI ng PSO1 L L	with effe Ho S	ect from urs 5 5 PSO3 S L	2023-20 L 3 PSO4 M M	24 O T 2 PSC M M	P -)5 	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3	ADVA COMMUNICA PO1 M M S	unicati Title ANCEE TION S PO2 M S M L	on Syll: SYSTEN C PO3 S M L	Abus I Co T MS O-PO PO4 M M L	JOCF - ourse ype DSE IV Mappi PO5 M M M S	CBCS v Sem. VI ng PSO1 L L M	with effe Ho 5 PSO2 M S	ect from urs 5 5 PSO3 S L M	2023-20 L 3 PSO4 M M L	24 O T 2 PSC M M L	P -)5 	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4	ADVA COMMUNICA COMMUNICA PO1 M M S S M	unicati Title ANCED TION S PO2 M S M L	on Sylla SYSTEM PO3 S M L M M	Abus I Co T MS O-PO PO4 M M L L L	JOCF - ourse ype DSE IV Mappi PO5 M M M S L	CBCS v Sem. VI ng PSO1 L L M L M	with effe Ho Ho PSO2 M S M	ect from urs 5 5 PSO3 S L M S S	2023-20 L 3 PSO4 M M L M	24 O T 2 PSC M M L L	P -)5	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO3 CO4 CO5	ADVA COMMUNICA COMMUNICA PO1 M M S M S M S	unicatiTitleANCEDTION SPO2MSMLS	on Syll: SYSTEN C PO3 S M L M M M	Abus I Co T MS O-PO PO4 M M L L L M	JOCF - ourse ype DSE IV Mappi PO5 M M M S L S	CBCS v Sem. VI ng PSO1 L L M L M	with effe Ho Ho PSO2 M S M S M S	ect from urs 5 5 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2023-20 L 3 PSO4 M M L L M M	24 O T 2 PSC M M L L L M	P -)5 	rds C 4	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlation between CO and E	ADVA COMMUNICA COMMUNICA PO1 M M S M S M S	unicati Title ANCED TION S PO2 M S M L S L-L0	on Syll: SYSTEM PO3 S M L M M M	Abus I Co T MS O-PO PO4 M M L L L M	JOCF - ourse ype DSE IV Mappi PO5 M M M S L S	CBCS V Sem. VI ng PSO1 L L M L M M	with efferences of the second	ect from urs 5 5 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7	2023-20 L 3 PSO4 M M L M M	24 O T 2 PSC M M L L L S-STH	P - - - - - - - - - - - - - - - - - - -	G	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO3 CO4 CO5 Level of Correlation between CO and F	ADVA COMMUNICA COMMUNICA PO1 M M S M S M S On O	unicati Title ANCEE TION S PO2 M S M L S L-L0	on Sylla SYSTEN PO3 S M L M M OW	abus I Co T MS O-PO PO4 M M L L L M	JOCF - ourse ype DSE IV Mappi PO5 M M S L S	CBCS v Sem. VI ng PSO1 L L L M L M M t Proble	with effe Ho PSO2 M M S M S -MEDIU	ect from urs 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2023-20 L 3 PSO4 M M L M M	24 O T 2 PSC M M L L L S-STH	P -)5 - (ON(G	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlatio between CO and F Tutorial Schedule	ADVA COMMUNICA COMMUNICA PO1 M M S S M S On O	unicati Title ANCED TION S PO2 M S M L S L-L0 Group Audio	on Sylla SYSTEM PO3 S M L M M OW OW	abus I Co T MS O-PO PO4 M M L L L M	JOCF - ourse ype DSE IV Mappi PO5 M M S L S	CBCS v Sem. VI ng PSO1 L L L M L M t, Proble	with effe Ho Ho PSO2 M S M S M S MEDIU em Solvia	ect from urs urs PSO3 S L M S M JM ing, Brain Assign	2023-20 L 3 PSO4 M L M M N IL M M IL M M IL M IL M IL M IL IL	24 O T 2 PSC M M L L L M S-STH ng & oster	P -)5 - ON(Quiz Prese	G	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlatio between CO and F Tutorial Schedule Teaching and Lea	ADV2 COMMUNICA COMMUNICA PO1 M M S S M S On O	unicati Title ANCED TION S PO2 M S M L S L-L0 Group Audic and V	on Syll: SYSTEM PO3 S M L M M OW OW O discus O Video	Abus I Co T MS O-PO PO4 M M L L L M Sion, I lecture esenta	JOCF - ourse ype DSE IV Mappi PO5 M M S L S L ab Visi e, Chalk	CBCS v Sem. VI ng PSO1 L L M L M t, Proble	with effe Ho Ho PSO2 M S M S M S M S M S M S M S M S M S M S M S	ect from urs urs pso3 S L M S M JM ing, Brains, Assign	2023-20 L 3 PSO4 M M L M M n Stormin nment, P	PSC M M L M L M S-STH ng & oster	P -)5 - CON(Quiz Prese	G rds C 4 G rtation	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlatio between CO and F Tutorial Schedule Teaching and Lea Assessment Metho	ADV COMMUNICA COMMUNICA PO1 M M S M S M S On O	unicati Title ANCEE TION S PO2 M S M L S L-LC Group Audic and V Class	on Sylla SYSTEN PO3 S M L M M OW OW OUS OV OUS OV C S S S M L M T S S S S S S S S S S S S S S S S S S	Abus I Co T O-PO PO4 M M L L L M Sion, I lecture esenta nit Te	JOCF - ourse ype DSE IV Mappi PO5 M M S L S L s L s cab Visi e, Chalk tion	CBCS v Sem. VI ng PSO1 L L M L M t, Proble c and Bo	with efferences Ho PSO2 M M S M S -MEDIU em Solvi ard class	ect from urs 5 5 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7	2023-20 L 3 PSO4 M L M L M M I M I I I I I I I I M I	24 O T 2 PSC M L L M S-STH ng & oster	P -)5 CON(Quiz Prese	G rds C 4 G ntation	
B.Sc –Electro Course Code 23M6UELE04 CO Number CO1 CO2 CO3 CO4 CO5 Level of Correlatio between CO and F Tutorial Schedule Teaching and Lea Assessment Metho	ADV2 COMMUNICA COMMUNICA PO1 M M S M S M S On O O	unicati Title ANCED TION S PO2 M S M L S L-L0 Group Audic and V Class	on Syll: SYSTEM C PO3 S M L M M OW O U discus O Video F ideo pro Test, U	Abus I Co T MS O-PO PO4 M M L L L M Sion, I lecture esenta fnit Tec erified	JOCF - ourse ype DSE IV Mappi PO5 M M S L S L ab Visi e, Chalk tion st, Assi	CBCS v Sem. VI ng PSO1 L L L M L M t, Proble a and Boa	with efferences with efference	ect from urs urs psoa S L M S JM ing, Brain s, Assign CIA-II a proved	ZO23-20 L 3 PSO4 M L M	PSC M L M L M S-STH ng & oster	P -)5 - N(Quiz Prese	G tary	





(Autonomous)

B.Sc –Elec	tronics and Communication	on Syllabus LOCF - CBC	S with	effect fr	om 2	2023-2024	Onw	ards	
Course Code	Course Title	Course Type	Sem	Hour s	L	Т	P	•	С
23M6UELE05	ROBOTICS AND AUTOMATION	DSE V	VI	5	3	2	-		4
Objective	To acquire basic ki also enable them to unders applications.	nowledge and skills by the stand the various component	studen nts and	t in the fi process	eld c planı	of robotics ning of rob	and a otics	uton in va	nation rious
Unit		Course Content				Knowle Level	dge s	Ses	sions
Ι	Basic Concepts of Robot Robot applications- Man medical etc., Laws of Rob and External Grippers; Se accuracy and repeatability	ts: Introduction to robotics nufacturing industry, defe otics, Robot classification lection and Design Consider of robot, specification	s - Hist nse, re s, Inter erations	tory, grov ehabilitat mal Gripj s, resolut	vth; ion, oers ion,	К3			12
п	Power Sources and Sens - determination of HP o arrangements - path de characteristics, sensor -T Range and proximity -lase	ors: Hydraulic, pneumatic of motor and gearing rati- etermination - machine ypes-Touch, Potentiomete r - acoustic - magnetic sense	e and el o - va vision er, Enc sor	lectric dr riable sp - sens oder, Fo	ives eed ors, rce,	К3			12
ш	Manipulators, Actuato manipulators - manipulator pneumatic manipulator co types, DC motors, BLDC design considerations	ors and Grippers: or dynamics and force cont ontrol circuits - end effector servo motors - U various	Cons arol - el ors - A types o	truction lectronic ctuators of grippe	of and and rs -	K2			12
IV	Kinematics and Path problem - multiple solut techniques - robot program	Planning: Solution of ion Jacobian work envelonming languages	inverse op - h	e kinema nill climb	tics oing	К3			12
V	Automation and Indus manufacturing and auto systems- Multiple robots and non- manufacturing ap *Current Trends: Desig	Stry Robotics: Fundamentation- definition of an emotion of an emotion of an emotion of the machine interface - robot oplications- selection of robot us n of Fire Fighting Robot us	nental utomati ts in m oot. sing Ar	concepts ion - C anufactu duino	in NC ring	K4			12
	CO1: Understand the conspecifications and constants	oncepts of industrial roboordinate systems,	ots and	d its Ty	pes,	K1			
Course	CO2: Identify the different maze solving and se	ications	like	K2					
Outcome	CO3: Describe robot and dynamics of motion	К3							
	CO4: Describe how to h Exceptions and strat	w to handle the User Events and various types of K4 K4							

	CO5: Ana the c	CO5: Analyze the navigation and path planning techniques along with the control architectures adopted for robot motion planning.											
				Lea	arning R	esources	5		,				
Text Books	1. M. (Pea 2. B. C Che 3. S. R	 M. P Groover, Automation Production Systems and Computer - Integrated Manufacturing (Pearson Education, New Delhi, 2001) B. Ghosh, Control in Robotics and Automation: Sensor Based Integration (Allied Publishers, Chennai, 1998). S. R. Deb, Robotics Technology and flexible Automation (John Wiley, 1992). 											
Reference Books	1. Asin 2. B.L 3. M. Prog	 Asimov, Robot (Ballantine Books, New York, 1986). B.L. Jones, Elements of industrial Robotics (Longman, 1987). M. P. Groover, M. Weiss, R.N. Nagel N. G.Odrey, Industrial Robotics Technology, Programming and Applications (McGraw Hill Book Company, 1986). 											
Website Link	1. <u>https</u>	1. https://onlinecourses.nptel.ac.in/noc19_me74/preview											
*Self-Study Material	https://te	https://techatronic.com/fire-fighter-robot-using-arduino-fire-fighting-robot/											
	L-Le	ecture		T-Tut	orial		P-Pra	actical			C-0	Credit	
B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards													
Course Code	Co	Course Title			Course Type Se			Hou rs	Hou rs L		Т	Р	C
23M6UELE05	ROBO AUT	OTICS A	AND ION		DSE V	V	VI	5	5 3		2	-	4
				С	O-PO M	apping							
CO Number PO1 P		PO2	PO3	PO4	PO5	PSO1	PSO	2 PS	03	PSO4	PSO 5)	
CO1	М	S	L	S	S	М	S	5	S	S	S		
CO2	S	М	L	S	М	М	M		S	М	М		
CO3	М	М	L	М	L	S	S		S	S	S		
CO4	S	L	L	L	М	S	S		S	М	М		
CO5	M	М	L	М	S	М	S	Ν	M	S	S		
Level of Correlat between CO an PO	Correlation a CO and L-LOW M O					Ν	1-MED	MEDIUM S-STRONG					
Tutorial Schedu	le	Gr	oup discussion, Lab Visit, Problem Solving, Brain Storming & Quiz										
Teaching and LearningAudioMethodsVideo				Audio Video lecture, Chalk and Board class, Assignment, Poster Presentation and Video presentation									
Assessment Met	Assessment Methods Class				Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE								
Designed By						Verified By							
Designe	d By			Veri	fied By			Арр	roved	By Mo	ember	Secre	etary





(Autonomous)

B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards											
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	C			
23M6UELE06	MEDICAL ELECTRONICS	DSE VI	VI	5	3	2		4			
Objective	To acquire knowle understand the specialized	ction	is and applications and to								
Unit		Knowl Lev	Ses	ssions							
I	Physiological Systems a Cell, Tissues and organs body - Half-Cell Potential Potentials.	KZ	2		12						
П	Introduction to Bio-M Medical Instruments - Des Electrodes - Types of Elec Transducers used for me Bridge and Medical Pre-A	Bio- ers - ion:	K2	12							
III	Bio-Potential Recorders Electrocardiography Electroencephalography (I -Phonocardiography Physiological Assisting I Defibrillators -Electrothera muscle Stimulators	KI		12							
IV	Specialized Medical H statement - concurrent vo drivers - Block Statement signal.Blood Cell Count Digital – Thermometers - - Magnetic Resonance Ima	KI		12							
V	Bio-Telemetry : Introduct Design of Bio- Telemetry in implant telemetry - Uses of Bio-Telemetry * Current Trends: Measu	K2		12							
	CO1: Understand the basic		K								
Course	CO2: Acquire knowledge	K2									
Outcome	CO3: Interpret various Hu	man Assistive devices				K3	3				
	CO4: Analyze bio signals and recorders										

	CO5: Evaluate the performances of specialized Bio-Medical Devices, Design Bio-Medical instruments for various ApplicationsK5											
					Lea	rning Re	sources	11				
Text Books	 M. Arumugam, "Biomedical Instrumentation", 2nd Edition, Anuradha Publications, Reprint 2011. Leslie Cromwell, Biomedical Instrumentation and Measurement, 2nd Ed. (Prentice Hall of India, New Delhi, 2007) R. S. Khandpur, Handbook of Biomedical Instrumentation, 2nd Ed. (Tata McGraw-Hill, New Delhi, 2011) 											
Reference	1. G. S. Sawhney, Biomedical Electronics and Instrumentation made easy (2011)											
Books Website	 Gowri Nambi, Biomedical Engineering: A Quick Reference Guide (Notion Press, 2019) https://nptel.ac.in/courses/108108180 											
Link	2. <u>htt</u>	 <u>https://www.edx.org/course/biomedical-equipment-technician-trainingmaintenance-repair</u> 										
* Self Study Material	https://www.ncbi.nlm.nih.gov/books/NBK262/											
	L	L-Lectur	e		T-Tuto	orial		P-Prac	tical		C-Cree	dit
B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards												
Course C	Course Code Cou		urse Ti	tle	Cou	ırse Type	e Sei	m. Ho	ur L	Г	C P	С
23M6UELE06 M ELE		EDICA CTRON	L NICS	L DSE		V	I 5	3	2	2 -	4	
					CC)-PO Ma	pping					
CO Num	ıber	PO1	PO2	PO 3	PO4	PO5	PSO 1	PSO 2	PSO3	PSO4	PSO5	
C01		S	S	L	S	М	М	S	S	S S		
CO2	CO2 S		S	L	S	М	7					
		5	~	-		171	S	M	S	S	Μ	
CO3		S	M	M	М	L	S S	M M	S S	S M	M S	
CO3 CO4		S M	M M	M M	M M	L S	S S S	M M S	S S M	S M M	M S M	
CO3 CO4 CO5		S M S	M M M	M M L	M M M	L S M	S S M	M M S S	S S M M	S M M S	M S M S	
CO3 CO4 CO5 Level of Cor between C PO	relation O and	S M S	M M M	M M L L-LOV	M M M W	L S M	S S M M	M M S S I-MEDI	S S M M UM	S M M S	M S M S-STRO	NG
CO3 CO4 CO5 Level of Cor between C PO Tutorial Sch	relation O and redule	S M S	M M M Group	M M L L-LOV	M M M W	L S M	S S M M	M M S S I-MEDI	S S M M UM , Brain Sto	S M M S	M S M S-STRO	NG
CO3 CO4 CO5 Level of Cor between C PO Tutorial Sch Teaching an Methods	relation O and redule d Learni	S M S	M M M Group Audio Video	M M L L-LOV discus Video presen	M M M W ssion, La lecture, ttation	L S M b Visit, F Chalk an	S S M Problem	M M S S I-MEDI Solving	S S M M UM , Brain Sto Assignmen	S M M S orming & t, Poster	M S M S-STRO	NG
CO3 CO4 CO5 Level of Cor between C PO Tutorial Sch Teaching an Methods Assessment	relation O and edule d Learni Methods	S M S	M M M Group Audio Video Class	M M L L-LOV discus Video presen	M M M w ssion, La lecture, tation	L S M b Visit, F Chalk an , Assigni	S S M Problem d Board	M M S S I-MEDI Solving I class, A	S S M M UM , Brain Sto Assignmen	S M M S orming & t, Poster	M S M S-STRO	NG tion and
CO3 CO4 CO5 Level of Cor between C PO Tutorial Sch Teaching an Methods Assessment Desig	relation O and edule d Learni Methods gned By	S M S ing	M M M Group Audio Video Class	M M L L-LOV discus Video presen Test, U	M M M Ssion, La lecture, tation Unit Test	L S M b Visit, F Chalk an , Assigni	S S M Problem d Board ment, Cl	M M S S I-MEDI Solving I class, 7	S S M M UM , Brain Sto Assignmen A-II and E Approved	S M S S orming & t, Poster SE By Men	M S M S-STRO	NG tion and





(Autonomous) I and MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(Autonomous)

Rasipuram - 637408

List of Skill Based Elective Course (SEC) for B.Sc., Electronics and Communication SYLLABUS - LOCF-CBCS Pattern EFFECTIVE FROM THE ACADEMIC YEAR 2023-2024 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	II	23M2UELS01	POWER ELECTRONICS
2	III	23M3UELS02	8051 MICROCONTROLLER AND ITS APPLICATIONS
3	IV	23M4UELS03	MODERN ELECTRONIC MEASUREMENTS AND INSTRUMENTS
4	V	23M5UELS04	COMPETITIVE SKILLS
5	VI	23M6UELS05	LIFE AND ENTERPRENURE DEVELOPMENT SKILLS





(Autonomous)

B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards														
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С						
23M2UELS01	POWER ELECTRONICS	SEC-I	II	2	2	2 -		2						
Objective	To equip students wire applications, and to develop efficient energy conversion ar	princ wer ele	principles, devices, er electronic system											
Unit	0	Kn I	owledg Jevels	e Ses	ssions									
I	Power Semiconductor Devi ,VI characteristics, Applicat current, latching current, dv/d working ,VI characteristics ,a SCR rating and their importar	e g f -	К2		4									
П	Triggering and Commutati triggering methods – Concep gate triggering – Pulse transfe by opto isolator - Resistance circuit and waveform, Synchr Commutation – SCR Turn Of Commutation – Class A, Clas	e e n g d	K3		6									
Ш	Converters and Choppers controlled bridge converter flywheel diode -1Φ fully of voltage and current waveform with RL load –voltage and cur Choppers: Introduction – a Methods - Types of chopper- Jones chopper – Morgan of control circuit for driving MO	f f r 1 - 1	K3		5									
IV	Inverter: Definition Requir resistive load -1Φ inverter v output from an inverter- outp inverter $-$ Advantages-Throu IGBT - UPS $-$ Need for Comparison of ON line and C - Advantages $-$ Drawbacks.	h e y g -	K4		5									
V	AC Voltage Regulators: I Principle of On-Off Control Controller with Resistive Loa RL load -Three Phase Full W Phase Cyclo converters – AC	ntroduction to AC Vo – Principle of Phase Co ads – Single Phase volta Vave Controller – Cyclo Voltage controllers with	oltage Co ontrol – 1 age Contr converter PWM C	ontroller Φ voltag roller wit rs – Singl ontrol.	e n e	K4		4						
	CO1:	Remer Semic	mber a onduct	nd Desc tor devic	cribe th	e const	ruction a	and op	eratio	on of P	ower	K1		
-----------------------------------	--	--	------------------	----------------------	----------	----------	------------	----------	--------------------------------	-------------------	----------	----------	--------	---
	CO2:	Interp	ret the	method	s of tri	ggering	and cor	nmuta	tion '	Techni	ques	K2	2	
Course		· Analy	ze and	determ	ine the	onerati	on ofcor	trolle	d rec	tifier a	nd			
Outcome	Chop	per circ	zuits.	determ		operati		nione		differ a		K3		
	CO4:	Demo	nstrate	the ope	ration	of inver	rters in v	various	s app	olication	ıs.	K4	ł	
	CO5: Perfo	Catego	orize tl	ne vario	us DC	and AC	power :	supply	v base	ed on		K4	ļ	
	1 6110	manee	<u>.</u>		Lea	arning	Resourc	es						
Text	1.N	/Iuhamr	ned H.	. Rashid	- " Po	wer Ele	ctronics	" PHI	- 2nd	d Editio	on			
Books	2.Ja	aganath	ian, " I	Power E	lectror	ics"-P	HI – 2nd	l Editi	on.		- 4			
Reference	1.Singh M D and Khanchandani K B ,2007, Power electronics 2 nd Ed, 2 Mithal G K 2000 Industrial electronics and control 8 th Ed TMH N								nd Ed, T. 1H Nev	MH, Del vdelhi	hi.			
Books	2.Mithal.G.K,2000, Industrial electronics and control 8 th Ed,1MH, N 3.Theraja B.L, Theraja.A.K, 2003, "Electrical Technology" - I st S.Cha								S.Chand	l, Newde	lhi.			
Website Link	1. <u>h</u>	1. <u>https://onlinecourses.nptel.ac.in/noc22_ee127/preview</u>												
	2.1	2. <u>https://www.coursera.org/specializations/power-electronics</u>								(C-Credit	r		
D Sa Elaa	tronio	ronics and Communication Syllabus LOCE - CBCS with effect from								from 20	122 202/		nda	
D.SC -LIEC	ti onics	ronics and Communication Syllabus LOCF - CBCS with effect fro									JZJ-ZUZ4			
Course Code	DOU	Cou	rse 11t			Cours	e Type	<u> </u>	em.	Hou	rs L		P	C
23M2UELS01	POV	VER EI	LECTI	RONICS	5	23M2U	JELS01		11	2	2	-	-	2
		1	1		С	O-PO I	Mappin	g						
CO Numbe	r	PO1	PO2	PO3	PO4	PO5	PSO1	PSO	2 I	PSO3	PSO4	PSO5		
C01		L	L	L	М	М	М	М		М	М	М		
CO2		М	L	L	М	М	М	Μ		М	М	М		
CO3		М	L	L	М	М	М	М		S	М	М		
CO4		М	М	L	М	S	М	Μ		S	S	М		
CO5		М	М	L	М	М	М	Μ		S	S	М		
Level of Correla between CO an	ation d PO			L-LOW	I		М	-MED	DIUM	1		S-ST]	RONG	
Tutorial Schedu	le			Group o	liscuss	ion, Lal	o Visit, I	Proble	m So	olving,	Brain St	orming a	& Quiz	
Teaching and L	earning Methods Audio Video lecture, Chalk and Board class PPT Presenta presentation								ntation a	nd Vide	0			
Assessment Met	class Test, Unit Test, Assignment, CIA-I, CIA-II ar						-II and I	ESE						
Desig	Designed ByVerified ByApproved					oved By	y Membe	er Secre	etary					
MR.S. SANTHOSH MR.S. ARULMANI DR.						DR.S.	SHAHI	ТНА						





(Autonomous)

B.Sc-Ele	ctronics & Communication S	Syllabus LOCF-CB	CS with	effect fro	m 202.	3-2024 C)nwar	ds
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С
23M3UELS02	8051 MICROCONTROLLER AND ITS APPLICATIONS	SEC-II	III	2	2	-	-	2
Objective	To impart comprehe architecture, programming te	nsive understanding echniques, and its app	to the s lications	tudents a	bout tl	ne 8051	micro	controller
Unit		Course Content				Knowl Leve	edge els	Sessions
Ι	8051 Architecture and Microcontrollers – Compres – 8051 Features - Pin detai Program Counter – PSW re Counters – Interrupts – Seria – State - Machine Cycle –Ir Different addressing modes of	n to troller tion - imer / Cycle eset -	K3	3	6			
п	Instruction Set: Instruction Instructions - Data transfer Logical instructions –Bra Instructions - Simple Program	8051 ons – lation	K3	3	4			
ш	I/O Programming and Tin programming – I/O bit man Timers/Counter – Timer/co operation – Timer /Counter p	ner: Bit addresses for ipulation programmi unter Registers - T programming - Simple	or I/O anng. Prog imer/cou e progran	nd RAM ramming nter moc ns.	– I/O 8051 les of	K4		4
IV	Serial Port and Interrupts: Communication Modes - priority – Programming T hardware interrupts – Progr programs.	Serial Communicati 8051 Interrupts – 1 Timer Interrupts – ramming the serial p	on – Bau Interrupt Program port inter	ud Rate - structure ming ex rrupt – S	Serial e and ternal imple	K	4	5
V	Interfacing Techniques: In interfacing – ADC interfacin – Seven segment LED Displ DC motor interfacing using I *Current Trends: Object co	Sensor facing cing –	K	5	5			
	CO1: Recall the concepts of programming.	ge	K1					
Course Outcome	CO2: Interpret the various h	ardware features of 8	051 Mici	rocontroll	er.	K2	,	
Guttome	CO3: Experimenting the var features of 8051 microcontrol	ious instruction set to oller.	o utilize t	he hardwa	are	К3		

	CO4 met	4: Exa hods	amine	the har	dware	featur	es using	g simpl	e prog	ramming	K4	ŀ	
	CO	5: Class desig	sify and n Micr	l select t ocontro	he app ller bas	ropriate sed syst	e periphe ems.	ral devic	ces to		K5	5	
					Le	arning	Resourc	es					
Text Books	1. M Sy 2. Int	ohamed /stem", tel 803	d Ali M Pearso 1/8051	laszidi & n Publis family I	z Janico hers Data Sh	e Gillis neet – In	pie Masz ntel corp	zidi, "The oration	e 8051	Microcont	roller an	d Embe	edded
Reference Books	1. Ke Ec	enneth . lition, F	J. Ayala Penram	a, "The S Internat	8051 N ional P	licroco Publicat	ntroller A ions.	Architect	ture, Pro	ogramming	g and Ap	plicatio	on"2 nd
Website Link	<u>https</u>	://onlin	ecourse	es.nptel.	ac.in/n	<u>oc24_e</u>	e46/prev	iew					
*Self Study Material	<u>https</u>	://www	.circuit	stoday.c	<u>com/ob</u>	ject-co	unter-usi	ng-8051	#googl	e_vignette			
		L-Lect	ture		T-Tut	orial		P-Prac	tical		C-	Credit	
B.Sc-Ele	ectron	ics & (Commu	inicatio	n Sylla	bus L	OCF-CB	CS with	effect	from 2023	3-2024 (Inward	ls
Course Code	Course TitleCourse TypeSem.HoursI								s L	Т	Р	С	
23M3UELS02	MI	8051IIIIII22MICROCONTROLLER AND ITS APPLICATIONSSEC-IIIII22							2	-	-	2	
					С	O-PO	Mappin	g					
CO Numbe	r	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	B PSO4	PSO5		
CO1		S	М	L	М	S	S	М	S	М	S		
CO2		S	М	L	S	S	М	М	S	М	S		
CO3		М	S	L	S	L	М	М	S	S	S		
CO4		М	S	L	М	М	L	М	S	S	М		
CO5		S	М	L	S	S	М	М	S	S	S		
Level of Correla between CO a PO	ation and			L-LOW			М	-MEDIU	JM		S-STI	RONG	
Tutorial Sched	ule			Grou	p discu	ssion, l	Lab Visit	, Problem	m Solvi	ng, Brain	Storming	g & Qu	iz
Teaching and I	Learning Methods Audio Video lecture, Chalk and Board class PPT Presentation and Video presentation												
Assessment Me	ethods	5		Class	Test,	Unit Te	st, Assig	gnment,	CIA-I,	CIA-II and	1 ESE		
Designed By				Verified By Approved By Member Secretar							ecretary		
Mr. I. BAI		М	r.S. Al	RULMA	NI		DF	R.S.SHA	HITHA	A			





(Autonomous)

B.Sc-Ele	ectronics & Communication Syl	llabus LOCF-CBCS	s with ef	ffect from	2023	-2024 On	ward	.S		
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С		
23M4UELS03	MODERN ELECTRONIC MEASUREMENTS AND INSTRUMENTS	SEC - III	IV	4	1	3	-	2		
Objective	To make the students learn measuring instruments like me	about the principle o ters and CRO.	fvariou	s transduc	ers, m	easuring	techni	ques and		
Unit	C	ourse Content				Knowle Leve	edge ls	Sessions		
I	Electromechanical indicatin Voltmeter - Voltmeter Sensiti Analog Voltmeter - Series & S Instruments – Study of a Typica	K2		5						
II	Measuring Bridges: Wheatst AC Bridges – Capacitance & I Hay - Schering - Wien - Kelvin	neral /ell –	К3		5					
ш	Cathode Ray Oscilloscope: E System - Horizontal Deflection Oscilloscope Probes - Measure Lissajous's Patterns.	ection iles - nase -	K4		5					
IV	Signal Generators : Sample an - Function Generator – Pulse Meter – Wave Analyzer - Harm	d Hold Circuit - Ins Generator - Q Mete nonic Distortion Anal	trumenta er - Vec lyzer.	ation Amp ctor Impe	olifier dance	К3		3		
V	Transducers and sensors Transducers - Capacitive Tra Thermo Electric Transducers - & Loud Speakers Sensors and *Current Trends: Digital Sto	: Resistive Trans ansducers – Piezo - Temperature Trans Actuators rage Oscilloscope	ducers Electric ducers -	– Indu Transduo - Microph	ctive cer - iones	K4		6		
	CO1: Remember and understar instruments.	nd the various measur	rement t	echniques	and	K1				
	CO2: Determine the performance of various measuring bridges. K2									
	CO3: Demonstrate and perform the various measurements using CRO. K3									
Course Outcome	CO4: Analyze the functionality	of signal generators	•			K4				
	CO5: Analyze performance of elements.	various sensors and s	signal co	onditioning	g	K4				

		Learning Res	ources									
Text Books	 Cooper, Modern I India, First Editio H.S. Kalsi, Mode 	Electronic Instrumentation (2008) rn Electronic Instrumenta	on and Measurements Tech ation, McGraw-Hill Educa	niques Pearson Education, tion, Third Edition (2017)								
Reference Books	 J.B. GUPTA, A Kataria & Sons, H A.K. Sawhney, H (P) Ltd, Fourth E 	 J.B. GUPTA, A Course in Electronic and Electrical Measurements and Instrumentation", S.K Kataria & Sons, First Edition (2013) A.K. Sawhney, Electrical & Electronic Measurements and Instrumentation, Dhanpath Rai & Co (P) Ltd. Fourth Edition (1985) 										
Website Link	 <u>https://onlinecour</u> <u>https://onlinecour</u> 	rses.nptel.ac.in/noc22_ee rses.nptel.ac.in/noc23_ee	<u>112/preview</u> 95/preview									
*Self-Study Material	https://www.geeksfo	orgeeks.org/digital-storag	e-oscilloscope/									
	L-Lecture	T-Tutorial	P-Practical	C-Credit								

B.Sc-Ele	ctror	nics &	Comm	unicat	ion S	yllab	us LO	CF-CBC	CS with	effect fr	om 2023-	2024 On	wards	
Course Code		Co	urse T	itle		(Course '	Туре	Sem.	Hours	L	Т	Р	С
23M4UELS03	M N	IODER IEASU INS	N ELF JREME TRUM	ECTRO ENTS A IENTS	NIC ND		SEC-	III	IV	4	4	2	-	2
						2	3M4UE	ELC04						
CO Number		PO1	PO2	PO3	PO	D4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
C01		М	М	S	N	Л	L	М	М	S	М	S		
CO2		М	L	L	Ν	Л	L	М	М	М	S	М		
CO3		М	М	S	Ν	Л	М	S	М	S	М	М		
CO4		М	М	L	N	Л	М	М	М	М	S	М		
CO5		М	S	L	N	Л	М	М	S	М	S	М		
Level of Correlat between CO and	ion PO			L-LO	W			М	-MEDIU	JM		S-STR	ONG	
Tutorial Schedu	le			Grou	up dis	scuss	ion, Lał	o Visit, F	Problem	Solving,	Brain Sto	orming &	Quiz	
Teaching and Le	earni	ng Me	thods	Aud prese	io Vi entati	deo l ion	ecture,	Chalk an	nd Board	class PI	PT Presen	tation an	d Video)
Assessment Met	hods			Clas	s Tes	t, Un	it Test,	Assign	ment, CI	A-I, CIA	-II and E	ESE		
Designed By Verified By Approved By Member Secreta							cretary							
Mrs.P.VIJA	MI			Mr	.S. AR	ULMAN	II		DR	R.S.SHAI	НТНА			





(Autonomous)

B.Sc-	Electronics & Communica	tion Syllabus LO	CF-CBC	S with eff	ect fron	n 2023	3-202	24 On	wards							
Course Cod	e Course Title	Course Type	Sem.	Hours	L	Т	,	Р	(С						
23M5UELS0	4 COMPETITIVE SKILLS	SEC – IV	V	2	2	-		-	4	2						
Objective	To enhance stuc prepare them for comp essential for career succ	lent's problem-so etitive environmen ess.	lving, crit nts throug	tical think the dev	king, an velopmen	d tean nt of	mwor techn	rk abi nical a	lities, and soft	and to skills						
Unit		Course Cont	ent				Kno L	owledg evels	ge Se	ssions						
I	VERBAL REASONIN Test –Coding Decoding Missing Character – Sit	IG: Analogy – C g – Logical Seque uation Reaction Te	lassification ence of V est –Venn	on – Dire Vords – I Diagrams	ction Se nserting	ense the		K2		5						
п	NONVERBAL REASO Water Images –Comple Paper Cutting and Foldi	NONVERBAL REASONING: Analytical Reasoning – Mirror Images – Vater Images –Completion of Incomplete Pattern –Cubes and Dice – K3 Saper Cutting and Folding														
ш	ARITHMATICAL AR Ratio & Proportion – Pr Simple Interest– Compo	BILITY: Percenta ofit &Loss – Time ound Interest.	ge– Aver e and Wor	age– HCF k–Probler	F & LCI ns on Ag	М — ge —		K4		5						
IV	TIME AND DISTANC Trains –Logarithms –Ca	C E: Chain Rule– T llendar – Clocks –	Time & D Probabili	istance – I ty	Problems	s on		K4		5						
V	DATA INTERPRET Line Graphs *Current Trends: Ved	TION: Tabulation Tabulation Transform	on– Bar icks	Graphs –	Pie Cha	rts–		K4		4						
	CO1: Remember and w reasoning method	nderstand the bas	ic concep	t of verba	l nonve	rbal		K1								
	CO2: Understand the shortcuts	CO2: Understand the Verbal and numerical aptitude concepts and shortcuts						CO2: Understand the Verbal and numerical aptitude concepts and shortcuts						K2		
Course Outcome	CO3: Analyze the Produtter CO3: Analyze the Product of the Product	blems logically an	nd approa	ch the pro	oblems	in a		K3								
	CO4: Apply the shorter competitive exam	CO4: Apply the shortcuts and practice the various methods to solve the competitive exam questions.						K4								
	CO5: Draw conclusio situations that are	ns or make deci dependent upon n	isions in nultiple fa	quantitati ctors.	ively ba	ised		K5								
		Learning I	Resources													
Text Books	 A Modern Approach To Verbal & Non Verbal Reasoning - Revised Edition - R.S. Aggarwal - S. Chand.(Units : I & II) Quantitative Aptitude - Revised Edition - R.S. Aggarwal - S. Chand. Units : III , IV & V An Advanced Approach To Data Interpretation - R.S. Aggarwal - S. Chand. 															

Reference Books	e1. Advanced Objective General Knowledge - R.S. Aggarwal - S. Chand2. Objective General English - R.S. Aggarwal - S. Chand.													
Website Link	1. 2.	https:// https:// HTyNF	www. www. K	youtube youtube	e.com/w e.com/w	vatch' vatch	?v=H ?v=x(YZJopl7g)WkptLF	gCI 60E&lis	st=PLpyc	33gOcb	VADMK	qylI	O_O_RMe
*Self- Study Material	http	os://ww	w.gee	ksforge	eks.org	/vedi	c-mat	ths/						
		L-Le	cture		T-Tuto	rial	P-P	ractical			C-4	Credit		
B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards														
Course Coo	le	(Cours	e Title		С	ourse	е Туре	Sem.	Hours	L	Т	Р	С
23M5UELS	04	COMP	ETIT	IVE SK	ILLS		SEC	– IV	V	2	2	-	-	2
		CO-PO Mapping												
CO Numb	ber	PO 1	PO 2	PO3	PO4	l I	PO5	PSO1	PSO 2	PSO3	PSO 4	PSO5		
CO1		М	S	S	М		S	М	L	L	L	М		
CO2		М	S	S	М		S	М	L	L	L	S		
CO3		S	S	S	S		М	S	L	L	L	М		
CO4		S	М	S	S		S	S	L	L	L	М		
CO5		М	S	М	S		М	L	L	L	L	S		
Level of Correlatio between CC PO	f on) and			L-LC)W			M-	MEDIU	JM		S-ST	RONG	ł
Tutorial Scl	hedu	le		Gro	oup disc	ussio	n, La	b Visit, P	roblem	Solving,	Brain St	corming &	z Quiz	
Teaching an Methods	nd Learning Audio Video lecture, Chalk and Board class, Poster Presentation, Demonstration and Video presentation													
Assessment	Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE													
De	signe	ed By				V	erifie	ed By		Α	pprove	d By Men	nber S	ecretary
MR.S.SA	MR.S.SATHISHKUMAR MR.S.ARULMANI DR.S.SHAHITHA													





(Autonomous)

B.Sc-Ele	ectronics & Communicati	on Syllabus LOC	F-CBCS	with eff	ect from	2023-	2024 Oı	nwar	ds		
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р		С		
23M6UELS05	LIFE AND ENTREPRENUER DEVELOPMENT SKILLS	SEC – V	VI	2	2	-	-		2		
Objective	To equip students wi growth, leadership, and th	th essential life s the ability to innova	skills and the sub-	d entrepr	eneurial entrepren	minds eurial	et, fost venture	ering s.	personal		
Unit		Course Conter	nt]	Knowle Level	dge s	Sessions		
Ι	Self-development skills: self-confidence–Thinking management–SWOT anal	Introduction to p and problem ysis and Goal setti	ersonalit -solving	y – Self- skills	7 – Self-Esteem and skills – Stress K2				5		
П	Inter personal skills communication –Skills Knowledge – Skills – Att	ive – lel	K3		5						
III	Group and Team dyn Formation–Cycle–Thinkin Dynamics techniques–Gro	Group and Team dynamics: Introduction to Groups–Compositi Formation–Cycle–Thinking–Clarifying expectations–Consens Dynamics techniques–Group Vs team–Team dynamics–Virtual team									
IV	Introduction to Entre Entrepreneurship and development–Phase of Entrepreneur–The En Entrepreneurship – Busir entrepreneurship and its re	epreneurship: C Enterprise–Objec Entrepreneurship trepreneurial r ness plan – Rural ole – Role of MSM	Concept etives c p devel nindset entrepre IE.	of Entr of Entre lopment Character neurship	epreneur preneurs –Role istics and won	- hip of of nen	K4		5		
V	Over view of life skills: – WHO Categories Life S relationship - Critical thir making – Coping with str	Meaning and signi kills – Self- aware king– Creative th ess – Coping with	ficance a eness–En inking – emotion	nd types npathy– I Reasoning	of life sk nterperso g - Decis	ills nal ion	K4		4		
	CO1: Define and identif professional life	fy different life sk	cills requ	ired in p	ersonal a	and	K1				
	CO2: Develop an awa techniques to cope	areness of the s with emotions and	self and stress.	apply v	well-defi	efined K2					
Course	CO3: Develop an Prepari			K3							
Outcome	CO4: Understand the bas		K4								
	CO5 : Develop and aware techniques to cope with en	ness of the self and motions and stress	l apply w	vell-Defin	ed		K5				

Learning Resources													
Text	1. Ent	repr	reneuria	al Deve	lopmen	t - Revis	sed Editi	on – S.S.	. Khanka	– S. Cha	and and o	compa	ny Limited.
Books	2. Pers	sona	ality de	velopn	nent and	soft ski	lls–Baru	n K.Mity	$\frac{ra - Oxf}{T}$	ord publ	ishers Tl	nird E	dition.
Reference	1.Entr	epre	eneursh lity De	11p- Ro velopr	bert hisi	rich and Soft ski	Michae	l Peters- un K Mit	Tata Mc vra – Ov	Graw-H	1ll Jishers		
Website	1.https	s://o	onlineco	ourses.	swavam	$\frac{10011 \text{ sk}}{2.\text{ac.in/c}}$	ec20 ed	$\frac{20}{\text{previ}}$	ew	liora pue	/11511013		
Link	2.https	s://o	onlineco	ourses.1	nptel.ac	in/noc2	2_hs77/p	review					
	L	L-Le	ecture	Т	-Tutoria	al P-Pr	actical			C-C	redit		
B.Sc –Elec	tronics	s an	d Com	munic	ation S	yllabus	LOCF -	CBCS v	with effe	ct from 2	2023-202	24 On	wards
Course Code		C	Course	Title		Course	Туре	Sem.	Hours	L	Т	Р	С
23M6UELS05	E	LIFE AND ENTREPRENUER DEVELOPMENT SKILLS SEC – V VI 2 2 2								2			
						CO-PC) Mappi	ng					
CO Number	PC	D1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	N	М	S	S	М	S	М	L	L	L	М		
CO2	Ν	Λ	S	S	М	S	М	L	L	L	S		
CO3	S	S	S	S	S	М	S	L	L	L	М		
CO4	S	5	М	S	S	S	S	L	L	L	М		
CO5	N	Λ	S	М	S	М	L	L	L	L	S		
Level of Correlation between CO an PO	nd			L-LOV	V		М	-MEDIU	JM		S-ST	RON	G
Tutorial Schedu	ule			Gro	oup disc	ussion, l	Lab Visit	, Problei	n Solvin	g, Brain	Storming	g & Q	uiz
Teaching and L	.earnin	ıg N	Aethod	s Auc and	lio Vide Video	eo lectur presenta	e, Chalk tion	and Boa	rd class,	Assignm	ient, PP	T Pres	sentation
Assessment Me	ethods Class Test, Unit Test, Assignment, CIA-I, CIA-II and ESE												
Desig	Designed ByVerified ByApproved By Member Secretary												
MR.S.SATH	HSHK	UN	1AR		Μ	R.S. AR	RULMA	NI		DF	R.S.SHA	HITH	IA





(Autonomous) (Autonomous) Autonomous) Autonomous) (Autonomous) (Autonomous)

Rasipuram - 637408.

List of Non-Major (NMEC) offered by the B.Sc., Electronics and Communication SYLLABUS - LOCF-CBCS Pattern EFFECTIVE FROM THE ACADEMIC YEAR 2023-2024 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	I	23M1UELN01	PRINCIPLES OF CELLULAR COMMUNICATION AND SMARTPHONES
2	I	23M1UELN02	FUNDAMENTALS OF ELECTRONICS-I
3	II	23M2UELN03	PC AND LAPTOP MAINTENANCE
4	II	23M2UELN04	FUNDAMENTALS OF ELECTRONICS-II





(Autonomous)

B.Sc –Elec	tronics and Communication Syllabus I	LOCF - CBCS	with eff	fect from	2023-	2024 O	nware	ds			
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	C			
23M1UELN01	PRINCIPLES OF CELLULAR COMMUNICATION AND SMARTPHONES	NMEC-1	Ι	2	2	-	-	2			
Objective	To make students learn the function cellular communication and to Impa Smartphones.	ndamentals of art knowledge	electron on tro	nics and a publeshoot	iccess ing a	ing tec nd ma	hnolo intena	gies of nce of			
Unit	Course Co	ntent			K	nowled Levels	ge S	essions			
Ι	Basics Of Electronics: Current & Volta – Transistor – Transformer – Inductor Measurement Procedure	age – Resistor rs- Integrated	– Capac Circuit -	itor –Diod Multimete	e er	K2		4			
II	Accessing Technology: Wireless comm GPRS – UMTS – LTE – Bluetooth -Wil	K3		4							
III	Smart Phone Sensors Features: A Sensor- Light Sensor (Software So Sensor- Geomagnetic Sensor- Face Rec Li-Ion – Li-poly	it 0 -	K3		6						
IV	Display: LCD – OLED - AMOLED Memory & Storage: Primary camera & Features-Internal Memory(ROM)-RAM Slot types-Call Log Memory	z Features – Se И-Memory can	econdary rd slot	Camera & Types-SIN	č 1	K3		5			
V	OS & Processors : Types of Mobile O Mediatek Helio parameters Troubleshoo Box - Mobile repair with Z3X Box – Sto	OS - Snapdra oting : Mobile eps to remove V	igon Pa repair w VIRUS -	rameters ith Miracl - SAR	e	K5		5			
	CO1: Remember and recall fundamenta	ls of Electroni	e Compo	onents.		K1					
	CO2: Understand the cellular community	cation techniqu	ies			K2					
Course Outcome	CO3: Illustrate the various sensors in M	lobile phone ar	nd its fea	tures		K3					
	CO4: Analyze the various hardware par	rts of a Smartpl	none			K4					
CO5: Classify and select the appropriate OS,Processors and trouble shooting techniques for smartphones.											
	Learning	Resources									

Text Books	 Jochen Schiller- "Mobile Communic M.Lotia, Pradeep Nair, "Modern Mo Devices", BPB Publications. 	cation", Person bbile Phone Rep	Education Ltd. pair: Using Compu	ter Software and Service							
Reference Books	 Manahar Lotia , "Modern Mobile Phone Introduction and Servicing", BPB. Dr.D.C.Agarwal , "Satellite communication", 3rd Ed-Khanna publishers-1995. 										
Website Link	https://www.youtube.com/watch?v=MY	https://www.youtube.com/watch?v=MYKZQ3SBOOw									
	L-Lecture	L-Lecture T-Tutorial P-Practical C-Credit									

B.Sc-Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards													
Course Code	Cou	irse Tit	le	Co	urse '	Туре	Sem	Hour s		L	Т	Р	С
23M1UELN01	PRI C COM AND S	NCIPL ELLUI MUNIC MART	ES O LAR CATIO PHO	F NMEC-1 ON NES		Ι	2		2	-	-	2	
				(CO-P	PO Ma	apping						
CO Number	PO1	PO2	PO	3 PO	94 F	PO5	PSO1	PSO2	PSO3	PS	04	PSO5	
C01	М	М	L	Μ	[М	М	М	S	S	5	S	
CO2	М	М	L	M	[М	М	М	S	N	1	М	
CO3	М	М	L	M		М	М	М	S	S		S	
CO4	М	М	L	S		S	S	М	S	N	1	S	
CO5	S	М	L	Μ	[S	М	S	S	S		S	
Level of Correlation between CO and PO		L-	LOW	W M-MEDIUM						S-STRONG			
Tutorial Schedule			(Group	discus	ssion,	Lab Visi	it, Proble	m Solvii	ng, B	Irain	Stormin	g & Quiz
Teaching and Learni	ng Met	hods	1	Audio ` present	Video ation) lectu	re, Chall	c and Boa	ard class	РРТ	' Pre	sentation	n and Video
Assessment Methods Class Test, Unit Test,								ignment,	CIA-I, C	CIA-	II an	d ESE	
Designed		Verified By							opro	ved By Secreta	Member ry		
MR. S. SAN		MR.S. ARULMANI							DR.	S.SHAH	ПТНА		





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) AUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(Autonomous) **Rasipuram - 637408.**

B.Sc–Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards												
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С				
23M1UELN02	FUNDAMENTALS OF ELECTRONICS-I	NMEC - I	Ι	2	2	-	-	2				
Objective	To impart knowledge devices and their real time ap	e on semiconducto plications to stude	r physics a nts.	and applica	tions	of basic	semico	onductor				
Unit	0	Course Content				Knowled Levels	lge	Sessions				
I	DC and AC Fundamenta Capacitance, Frequency, Per Inductance – Energy stor Connections- Ohms Law – K	OC and AC Fundamentals: Voltage, Current, Power, Resistance, Capacitance, Frequency, Period, V _{pp} , - Energy stored in Capacitor - nductance - Energy stored in Inductor - Series and Parallel Connections- Ohms Law - KVL - KCL.										
П	Semiconductor Physics: Se Bonding in Semiconductor Formation of PN Junction Applications of PN Junction	Semiconductor Physics: Semiconductors - Energy band Diagram - Bonding in Semiconductor - Doping - Types of Semiconductors - Formation of PN Junction Diode - Working and Characteristics,K25Applications of PN Junction Diode.5										
III	BJT: Construction – Workin – Characteristics – Applicatio an Amplifier.	BJT r as	K3		5							
IV	Circuit Design: Half Way Capacitor Filter – Voltage Re Supply – Battery Banks.	ve Rectifier-Full egulator – Design o	wave Brie of Dual Re	dge Rectif gulated Po	ier- wer	K5		4				
V	Application Circuits: LED Control of DC motor – W Automatic Street Light Contr	Flasher – Clap O Vater level Indica rol.	perated Sy tor – Bur	witch – Sp glar Alarn	eed 1 –	K5		4				
	CO1: Recall the basics of atc	omic structure and	bonding in	substances	5	K1						
	CO2: Understand the constru devices with their characteris	iction and working tics study.	of semico	nductor		K2						
Course Outcome	CO3: Analyze the basic circu	uits using diode and	d transistor	S		K3						
	CO4: Apply the knowledge of	on PN junction dio	de to const	ruct a RPS		K4						
	CO5: Develop simple application	ation circuits using	basic com	ponents		K5						
	Learning Resources											

Text	1. V.K. Metha, Rohit Metha – Principles of Electronics-S.Chand 12 th edition											
Books	2. R.S Sedha – A Tex	2. R.S Sedha – A Textbook of Applied Electronics – Revised Edition – 2008.										
Reference	1. S. Salivahanan, N	. S. Salivahanan, N. SureshKumar-Electronic Devices and Circuits –4 th Edi -2017										
Books	2. Isaak D. Mayergoyz, W. Lawson – Basic Electric Circuit Theory											
Website Link	https://www.electron https://www.electron https://www.allabout	https://www.electronics-tutorials.ws/ https://www.electronics-tutorials.ws/diode/diode_1.html https://www.allaboutcircuits.com/textbook/semiconductors/chpt-1/amplifiers/										
	L-Lecture	L-LectureT-TutorialP-PracticalC-Credit										

B.Sc-Ele	B.Sc-Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards														
Course Code		Course	Title		Cou	se Type		Sem	. Ho	urs	L	Г	[Р	С
23M1UELN02	2 FUI E	NDAME ELECTR	NTALS (ONICS-I	OF	NM	IEC - I		Ι	2	2	2	-		-	2
				(C O-PO	Mapping	g								
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PS	502	PSO3	PSO4	PS	05			
CO1	М	L	L	L	L	М]	М	Μ	М]	Ĺ			
CO2	М	L	L	L	L	М		S	М	S]	L			
CO3	М	М	L	М	L	L]	М	L	L	ľ	М			
CO4	S	S	L	М	S	М		L	L	М	I	Μ			
CO5	S	S	L	М	S	S		S	L	М	ľ	Μ			
Level of Correlation between CO and PO		L	-LOW	1		M·	-ME	EDIU	М		S	-STR	RON	G	
Tutorial Sche	edule		Group d	iscussio	n, Lab V	Visit, Pro	bler	n Sol	ving, Br	ain Sto	rming	g & Ç)uiz		
Teaching and Methods	Learning	g	Audio V presenta	ideo lec tion	cture, Cl	nalk and l	Boa	rd cla	iss PPT 1	Present	ation	and `	Vide	e0	
Assessment N	Assessment Methods Class Test, Ur						nt, (CIA-I	I, CIA-II	and E	SE				
Designed By					Verified By			Ар	Approved By Member Secretary					etary	
MR. I. BAL	NAN		MR.	S. ARU	LMANI				DI	R.S.S	НАН	ITH	łA		





(Autonomous)

B.Sc-Ele	ectronics & Communicati	on Syllabus LOCF-CB	CS wit	h effect f	rom 202	23-202	4 Onwa	rds			
Course Code	Course Title	Course Type	Sem	Hours	I	1	Т	Р	С		
23M2UELN03	PC AND LAPTOP MAINTENANCE	NMEC-II	II	2	2	r	-	-	2		
Objective	To make students Impart knowledge about Operating systems and La	 learn the fundamental troubleshooting and a ptop. 	s of mo also to	otherboar understa	d and a and the	iccessi impoi	ng tech rtance c	nologie of diffe	s to rent		
Unit		Course Content				Knov Le	wledge evels	Sessi	ons		
Ι	Fundamentals: Basic Ele Logic Gates - Boolean Al Diagram – Cabinet Form	ctronics Components – I gebra-Introduction to Co Factor	Basic N mputer	umber Sy -Desktop	/stem - Block]	K2	6			
Π	AotherBoard: Components of Motherboard-ATX-EATX-BTX-ITX- reatures of Intel core i3 – Intel core i5– Intel core i7-AMD Ryzen 5K3Basic troubleshooting and maintenance TrickK3										
III	RAM: Features Of DDR BIOS Setup- Block Diag Basic troubleshooting and	K4	4								
IV	Hard disk: Working & Pr Formatting – Windows installation Steps-Wind troubleshooting and main	on and 10 OS Basic]	K4	4						
V	Laptop:Introduction - Motherboard- Laptop Bat different screen section L	Structure of Laptop-Co tery charging and discha CD and LED-Antivirus l	ompone arging s Installat	ents of section -	Laptop Laptop]	K5	4			
	CO1: Remember and reca	all the various basic elec	tronic c	omponen	ts.	I	X 1				
	CO2: Understand the con	cept of motherboard and	l proces	sor.		I	K2				
Course Outcome	CO3: Analyze the RAM	and SMPS				I	Χ3				
	CO4: Apply the knowled Measurements.	ge Hard disk and OS ins	tallation	n in Elect	ronic	I	Χ4				
	CO5: Develop structure of motherboard	f Laptop and componen	ts of lap	otop		I	K5				
		Learning Resourc	es								
Text Books	 IBM PC Clones Hardw Computer repair mainter 	are troubleshooting. 2 nd enance. Amit Kumar Gu	Edition pta – La	- B.Govi akshmi p	ndarajlu ublicatio	.2002 ons.	TMH.				

	3.	3. Laptop repairing maintenance-Vinay chopra –BPB Publications										
Defense	1	The complete PC Ur	orade and maintenanc	e- Sanjay chugh –Dreamte	ch nress							
Books	1. 2.	Computer hardware learning guide-Vikas Gupta-Wiley India										
Website Link	1. 2. 3.	https://nptel.ac.in/courses/106106092 https://nptel.ac.in/courses/106103068 https://archive.nptel.ac.in/courses/112/107/112107217/										
		L-Lecture T-Tutorial P-Practical C-Credit										

B.Sc-Electro	onics & C	ommun	ication	Syllab	ous LO	CF-CB	CS with	ef	fect fron	n 2023-2	024 On	wards	
Course Code	Cour	se Title	:	С	ourse	Гуре	Ser	n.	Hour s	L	Т	Р	С
23M2UELN03	PC ANE MAINT) LAPT ENAN(OP CE		NMEC	-II	II	-	2	2	-	-	2
				CO	D-PO N	Aapping	ļ						
CO Number	PO1	PO2	PO3	PO 4	PO 5	PSO 1	PSO2	2	PSO3	PSO4	PSO 5		
C01	М	L	L	L	L	М	М		М	М	L		
CO2	М	L	L	М	L	М	S		М	S	L		
CO3	М	М	L	М	L	L	М		S	L	М		
CO4	S	М	L	М	S	М	L		L	М	М		
C05	S	L	L	М	S	S	S		М	М	М		
Level of Correlation between CO and P	on O	I	L-LOW			Ν	A-MED	IUN	М		S-STR	ONG	
Tutorial Schedule		(Group d	liscussi	ion, Lal	o Visit, I	roblem	So	lving, Br	rain Stor	ming &	Quiz	
Teaching and Lean Methods	ning	1	Audio Video lecture, Chalk and Board class PPT Presentation and Video presentation										
Assessment Metho	Assessment Methods				it Test,	Assign	ment, C	IA-	I, CIA-I	I and ES	E		
Designed		Verified By						Approved By Member Secretary					
MR.S.ARU		MR.S.ARULMANI DR.S.SHAHITHA							łA				





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous) Autonomous)

(Autonomous)

B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards													
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р	С					
23M2UELN04	FUNDAMENTALS OF ELECTRONICS-II	NMEC-II	II	2	2	-	-	2					
Objective	To impart Studer instruments used in electro	ts knowledge on di onics.	gital log	gic circui	ts and	sensors,	and r	neasuring					
Unit		Course Content				Know Lev	ledge els	Sessions					
I	Number Systems: Dec conversion of one nur Complements, BCD Code	imal – Binary – C nber systems to an – Gray Code – Exces	Octal – nother - s3 Code.	Hexadec - 1's a	imal – nd 2's	K	2	5					
II	Semiconductor Physics: Algebra – Demorgan's 7 Variables) – Simple Proble	miconductor Physics: Logic gates – Universal Gates – Boolean gebra – Demorgan's Theorem – Karnaugh Map (Up to 4 K3 5 uriables) – Simple Problems											
III	Combinational Circuits: Full Subtractor – Encoder	Half Adder – Full A – Decoder –MUX – I	dder – H DEMUX.	Ialf Subtr	ractor –	K	4	3					
IV	Sequential Circuits: Flip Counter - Down Counter -	equential Circuits: Flip Flop: RS – JK –D- T – Modulo Counters – U Counter - Down Counter – Decade Counter											
V	Sensors and Instrumer Condenser Mic – LVDT Amplitude, Frequency and	Sensors and Instruments: Potentiometer – Thermistor – LDR – Condenser Mic – LVDT – Load Cell – Multimeter – CRO – CRT – Amplitude, Frequency and Phase measurements using CRO.											
	CO1: Remember and reca Gates.	ll the various number	systems	and Logi	C	K	l						
	CO2: Understand the cone Algebra and K-Map.	cept of circuit simplifi	cation us	ing Bool	ean	KZ	2						
Course Outcome	CO3: Analyze the combin	ational and sequential	logic ci	cuits		K.	3						
	CO4: Apply the knowled Measurements.	edge of measuring in	nstrumen	ts in Ele	ectronic	K∠	4						
	CO5: Develop simple Dig Sequential logics.	ital logic circuits in us	sing com	binationa	l and	K.	5						
		Learning Resour	ces										
Text Books	 Digital Principles and Goutam Saha. 2014 Tat Digital Circuits and Des S. Salivahanan, N. Sure 	Applications. 8th Edi a Mc Graw Hill, New sign.4th Edition S. Sal shKumar-Electronic I	tion- Do Delhi. ivahanar Devices a	nald, P. 1 n S. Chano and Circui	Leach, A d- 2012. its <u>-4th</u> I	Albert Pa Edi -201	nul Ma 7	lvino and					
Reference Books	1. Digital Technology Prin International publication	nciples and Practice. 2 ns, New Delhi.	nd Editio	on- Viren	dra Kum	ar. 2015	. New	Age					

	 Albert.D. Helfric, William. Cooper - Modern electronic Instrumentation and Measurement Techniques-2015 										
Website Link	 <u>https://onlinecourse</u> <u>https://onlinecourse</u> <u>https://onlinecourse</u> 	es.nptel.ac.in/noc22_ee es.swayam2.ac.in/cec2 es.swayam2.ac.in/cec2	<u>110/preview</u> 1_cs16/preview 2_cs17/preview								
	L-Lecture	T-Tutorial	P-Practical	C-Credit							

B.Sc-Electr	B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards													
Course Code	Cou	ırse Tit	le		Course	Туре	Sem.	Hours	L	Т	Р	С		
23M2UELN04	FUNDAN ELECT	MENTA FRONI	ALS OF CS-II	OF NMEC-II			II	2	2	-	-	2		
				(CO-PO	Mappin	g							
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5				
C01	М	L	L	L	L	М	М	М	М	L				
CO2	М	L	L	L	L	М	S	М	S L					
CO3	М	М	L	М	L	L	М	L	L	М	Λ			
CO4	S	S	L	М	S	М	L	L	М	М				
CO5	S	S	L	М	S	S	S	L	М	М				
Level of Correlation between CO and P	on PO]	L-LOW	LOW M-MEDIUM					S-STRONG					
Tutorial Schedule			Gro	up disc	ussion,	Lab Vis	it, Proble	em Solvir	ıg, Brain	Stormin	g & Quiz			
Teaching and Lea	rning Me	thods	Aud pres	Audio Video lecture, Chalk and Board class PPT Presentation and Video presentation										
Assessment Metho	Assessment Methods					est, Ass	ignment,	CIA-I, C	CIA-II ar	nd ESE				
Design		Verified By						Approved By Member Secretary						
MR. I. BALA		MR.S. ARULMANI						R.S.SHA	HITHA					





(Autonomous)

B.Sc-Ele	ctronics & Communicat	tion Syllabus LOCF	B.Sc-Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards											
Course Code	Course Title	Course Type	Sem.	Hours	L	Т	Р		С					
23M5UELIS1	INTERNSHIP	INTERNSHIP	V	-	-	-	-		2					
Objective	To give some in the critical thinking and needs of industry in wh	dustrial work experi l problem solving ab ich they have to impr	ences dur ility of the ove their	ing the per e students, knowledge	riod of and als and sk	study, b so to ma ills.	by which ake them	impr to id	roving lentify					
Unit		Course Conte	nt]	Knowled ge Levels	S	ession s					
1	Embedded Systems: microprocessor, Microo processors – CISC and System- software emb embedded systems on a PIC 16F877 Archited Architecture - Memory INTCON Register - PO Oriented Operations Operations. Features of PIC: TIM Module - Capture/Co reception - USART – S Reset — Power up Tim Interrupts — Watchdog Interfacing And Appl and Solenoid Interfacin Interfacing - LCD in interfacing - DC moto (Use Embedded C Prog Embedded Software — Round Robin w Architecture— Real Ti —Semaphores and Shan Timer Function — Evo Study of Micro C/OS-II *Current Trends: RTO	Definition and c controller, and DSP RISC architecture – edded into a system chip and in VLSI cin cture and Instruct organization - Stat CON Register - I/O - Bit Oriented Op MER 0 Module - T mpare/ PWM Mod PI - ADC Module - er — Oscillator Start Timer —Sleep. lications: Interfacing g – Hex Keyboard I nterfacing – DAC r interfacing – DAC r interfacing - ADC a ramming) Architecture & Op ith Interrupts — me Operating System red Data— Message ents — Memory Ma I - Vx Works.	lassificati – exempl hardware m – exem cuit ion Set: us Registe Ports - D perations TIMER 1 lules - I Oscillator up Timer g of Swite nterfacing interfacir application ms (RTOS Queues, Munagement	on – Ov ary high p e unit in ar nplary app Device (er - Option Data EEPR Literal an Module - ² C transm Selection — Brown ch and LE 5 - 7 Segm ng – Step n -PWM a ystem: Ro Queue S) — Task Mail Box a c - Types	verview berforma olication Overvie on Regis OM - 1 ond Con TIME ission - Powe out Res Ds - R ent Dis oper m pplication Schedu ts and 1 nd Pipe of RTC	of ance dded ns – w - ter - Byte ntrol R 2 and er on et— elay play iotor ions. obin iling Data ss — DS –	K4-K5		-					
Course	CO1: Recognize the su	itable industry based	on the ski	ill set.			K1							
Outcome	CO2: Understand the w industry / Compa	ork protocols and en ny/institute.	vironmen	tal nature o	of an		K2							

	C	O3: Apply thei Company/	r skil institi	ll sets t ute.	to the as	ssign	ment give	n by the	industry	· /		K3	
	С	O4: Analyze the it using the	e pro eir ski	blems ill set.	in the g	giver	n assignme	ents and	trying to	resolve		K4	
	С	O5: Evaluate tl	ne wo	ork dor	ne and p	orepa	re docume	entation	s for the	work.		K5	
Learning Resources													
Text Books	'ext ooks1. Aniket Singh-"The Complete Book Of Internships in India: Intern Abroad This Summer"												
Reference Books	Reference Books1. Aniket Singh – "The Complete Book Of International Internships"												
Website Link	1. <u>ht</u>	tps://internshal	<u>a.con</u>	<u>n/</u>									
	L-Lecture T- P- Tutorial Practical C-Cred								edit				
B.Sc –Electronics and Communication Syllabus LOCF - CBCS with effect from 2023-2024 Onwards													
Course Code		Course Titl	le	Course Type Sem.				Hour s	L	Т	Р	С	
23M5UELI N1		INTERNSH	IP		Ι	NTE	CRN	V	-	-	-	-	2
CO-PO Mapping													
CO Number	PO 1	PO2	PO 3	PC PC	04 P	05	PSO1	PSO 2	PSO3	PSO 4	PSO 5		
CO1	S	S	Μ	N	1	S	S	М	S	S	S		
CO2	S	S	Μ	N	1	S	S	М	S	S	S		
CO3	S	S	S	S	5	S	S	S	S	S	S		
CO4	S	S	S	S	5	S	S	S	S	S	S		
CO5	S	S	S	S	5	S	S	S	S	S	S		
Level of Correlation between CO and PO	L-LOW M-MEDIUM S-ST								RONG				
Tutorial Scho	edule		-	15 Day	ys of tra	ining	g in a seleo	cted Ind	ustry/Co	mpany/I	nstitute		
Teaching and	d Lear	ning Methods Dairy of Work done and documentation											
Assessment N	ent Methods Evaluation of Report and Viva voce												
D	esigne	d By			Verified By Approved B					By Me	y Member Secretary		
Mr.I. B			Mr.S	5. AF	RULMAN	I		DR	.S.SHA	НІТНА			





(Autonomous)

Rasipuram – 637408

B.Sc - Electron	ics and Commun	ication Syllabus 1	LOCF-(CBCS with eff	ect froi	n 202	21-2022 On	wards					
Course Code	Course Title	Course Type	Sem	Hours	L	Т	Р	С					
23M6UELPR1	PROJECT WORK	-	4	3									
Objective	To apply the knowledge of analog and digital electronic systems in the design to solve some real time problems of industrial and social needs. And to impart the experience to the students in the industrial Field work.												
Details		Course C		Knowledge Levels	Sessions								
Format for the preparation of Project Report:	The final stage o 1. Title Pag 2. Bonafide 3. Acknowl 4. Table of 6 5. List of ta 6. Abbrevia		K4	-									
Text of the Project	6. AbbreviationThe following structure of project work should be followed to maintain the uniformity in preparation and presentation.Chapter 1 - Introduction: In this chapter Selection and relevance problem, historical background of the problem, definitions of related aspects, characteristics, different concepts pertaining to the problem etc can be covered by the candidate. Chapter 2 - Research Methodology: This chapter will include Objectives, Hypothesis, Scope of the study, Selection of the problem, Sample size, Data collection, Tabulation of data, Techniques and tools to be used, limitations of the study, significance of the study etc.Chapter 3 - Literature Review: This chapter will provide information about studies done on the respective issue. This would assist students to undertake further study on the same issue.												

	is the core part of the study. The analysis pertaining to collect data						
	will be done by the students. The application of selected tools or						
	techniques will be used to arrive at findings. In this table of						
	information, presentation of graph etc. should be provided by the						
	students.						
	Chapter 5- Conclusion: In this unit, findings of work will be						
	covered by the candidate and suggestion will be mentioned by the						
	candidate to validate the objectives and hypotheses.						
	If required, more chapters of data analysis could be added.						
	6. Bibliography						
	7. Appendix						
	1. Heading and Section headings should be capitalized and						
	centered–14 font sizes with Bold.						
Headings and Titles	2. Subdivision headings should be typed from the left hand	K3	-				
8	margin sentence case -12 font sizes with Bold.						
	3. Paragraphs should be indented seven space for pica type and						
	nine for elite type.						
	Paper: 8 $\frac{1}{2}$ * 11 inches in size (A4).Only one side of the sheet						
	should be typed.						
Tyning Instruction	Margin: The left side margin should not be less than 1.5 inches						
Typing mistraction	(or 40 min) the right, top and Bottom Margin one men (or 25 mm)	K3	-				
	Font: Times New Roman subject matter -12 font size in running						
	format. Heading and Section headings should be capitalized – 14						
	font size.						
	1. The table number (Example: TABLE 1.5) typed in capitals,						
Tables, Graphs and	should be separated from the text by two or three spaces.	V2					
Diagrams	2. If an explanatory note to a time is necessary, an asterisk should	КJ	-				
	be used.						
	3. The note should be placed immediately below the table.						
Numbering and	Line Spacing: The text of the thesis should be 1.5 lines spacing						
Spacing	Pagination: Pages of the text are numbered continuously in	K3	-				
~F8	Arabic numerals.						
	The format for hibliographical listing for books reports articles						
	are the same for footnote also. Books and articles can be arranged						
	either chronological order or vear wise.						
	For citing Books: Mann, R.S Social Change and Social Research,						
	New Delhi: Concept Publishing Company, 2018, p.27						
Dibliggeorby	Publication of Government and Public Organization:	V A					
Bibliography	Government of India, India 2016: A Reference Annual, New K4						
	Delhi: Publication Division, 201, p.127						
	r Citing Journal: Goel Ranjan, "Achievement through Human						
	Engineering", Indian Management, 28, No.8, July, 2016, pp.14-						
	10. For Citing Thesis on Dissoutation: Constantly A study of						
	ron changer income of Dissertation: Canapainy, A study of organizational and Individual Characteristics in P & D						
	organizational and mutvidual Characteristics III K & D	1					

	Organi Institut For C Excelle Semina Colleg	Organizations, unpublished Ph.D Thesis, Bangalore: Indian Institute of Science, 2016. For Citing Seminar Paper: Krishnaswami O.R., "Towards Excellence in Cooperative Management" (Paper Presented at a Seminar on "Excellence in Management", Cooperative Training College, Bangalore, July 2019).													
Schedule	VI Ser 1. D 2. Ja Q 3. Fe Pr 4. M 5. Aj	 VI Semester: 1. December: Identification of problem &Selection of topic. 2. January: Review of Literature & Finalization of Questionnaire. 3. February: Data collection& Analysis and preparation of Project report. 4. March: First, Second draft and Final draft Correction. 5. April: Review Presentation & Submission of Project. 													-
Course Outcome	CO1: Understand the Selection of the problem. CO2: Interpret Hypothesis and Objectives. CO3: Analyze the literature review based on the research problem. CO4: Evaluate the data collection. CO5: Create and conclude the Project report.												K2 K3 K4 K5 K6		
L-Lecture		T-7	Futorial		P-I	Practica	ıl		C-C	redit				<u> </u>	
Course Code		Cou	rse Title		С	ourse T	уре	Ser	n	Hours	L	Т		Р	С
21M6UELPR1	Р	ROJE V	ECT VIV OCE	'A I	PRO	JECT V	VORK	V]	I	4	-	-		4	3
CO-PO Mapping										I					
CO Number	PO	1	P02	P03	•	P04	P05	PS	01	PSO2	PS	03	PS	04	PSO5
C01	S		S	М		М	S	S	5	М	S	5	S	5	S
CO2	S		S	M	M M S			S	5	М	S	5	S	3	S
CO3	S		S	S	S S S S S S					S	5	S			
CO4	S		S	S		S	S	S	5	S	S		S	5	S
CO5	S		S	S		S	S	5	5	S	S	S		5	S

Level of Correlation between CO and PO: L-LOW, M-MEDIUM, S-STRONG									
Tutorial Schedule		-							
Teaching and Learning Methods		-							
Assessment Methods	E A - 100% 1. Project Report - 150 Marks 2. Viva-Voce - 50 Marks 3. Total - 200 Marks								
Designed By	Verified By	Approved By Member Secretary							
MR. I. BALAKRISHNAN	Mr.S. ARULMANI	DR.S.SHAHITHA							





MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous) Autonomous) Autonomous)

(Autonomous)

Rasipuram – 637408

B.Sc- Electr	B.Sc- Electronics & Communication Syllabus LOCF-CBCS with effect from 2023-2024 Onwards											
Course Code	Course Title	Course Type	Sem	Hours	L	Т	Р	С				
23M6UELOE1	ELECTRONICS AND COMMUNICATION FOR COMPETITIVE EXAMINATION	ONLINE- COMPETITIVE	VI	2	2	-	-	2				
Objective	To learn about the IC fabrication process and the fundamental building blocks of linear integrated circuits, as well as to become acquainted with linear integrated circuit applications.											
Unit	Course (Kno L	owledg e evels	³ Sessi	ons						
-	 Arrangement of different to physics, Circuit Analysis and theo Instrumentation. Digital Princip. Microcontroller like Advanced conbeen put forth to include recent development for the include recent development of some factual questions (MCQ), it is extremely such higher degree in University/institute students preparing for various natilentrance exams such as UGC-JRF/S SAIL, BHEL, SBI, IBPS, etc. Electronics. In addition, it is also use Rules for creating MCQ pattern: Objective type online examination 4th semester. Questions must be taken from UGC-NET, SET, DRDO, BSNL Entrance Test for Ph.D of various Test critical thinking. ✓ Multiple choice questions to √ Learners to interpret facts, or set facts. 		K5									

and effect, make inferences, and predict results. 4. Emphasize Higher-Level Thinking \checkmark Use memory-plus application oriented questions. These questions require students to recall principles, rules or facts in a real life context. Example 1: Ability to analyze statements and justify it : 1. Which of the following statement not suitable for semiconductors? *a)* Semiconductors are having 4 valance electrons *b) At* 0°*C it behaves like an insulator*. c) The energy gap is large. d) Si and Ge are the commonly used Semiconductors Eg.2 Ability to incorporate the facts with real time problems 2. Which kind of power supplies are suitable for computer systems design. *a) Regulated power supply b) Uninterrupted power supply c) Variable regulated power supply* d) *Switch mode Power supply* 5. Mix up the order of the correct answers: ✓ Keep correct answers in random positions and don't let them fall into a pattern that can be detected 6. Use a Ouestion Format: \checkmark Multiple-choice items to be prepared as questions (rather than incomplete statements) Incomplete Statement Format: The Astable multivibrator is also known as : This in Direct Question Format and it will be Less effective. Select another name of an Astable multivibrator. *a)* One shot Multivibrator b) Two shot Multiibrator *c) Free running Multivibrator d)* No shot Multivibrator : This is Best format.

7. Keep Option Lengths Similar

		 ✓ Avoid making your correct answer the long or short answer 8. Avoid the "All the Above" and "None of the Above" Options ✓ Students merely need to recognize two correct options to get the answer correct 9. HOD's instruct to the faculty to prepare minimum 500 questions booklet (cumulatively for each Programme) with solutions and circulate among the students. 10. Each Department to prepare the Questions (MCQ pattern with four answers) and submit to ICT. 							
		CO1: Recall and understand the various fundamentals of Electronics and communication.							
		CO2: Describe the various concepts and Methodologies of Analog and Digital electronic system design principles							
Cour	se Outcome	CO3: Demonstrate the various applications and advantages of discrete components and ICs in the circuit design process.	K3						
		CO4: Analyze and optimize the complex circuits using various theorems and principles.							
		CO5: Design and evaluate the different analog and digital circuits for controlling and communication process.							

	Lea	arning Resources								
Text	 Objective Electronics with solutions for IMD,DRDO, ISRO etc. by <u>Rakesh</u> <u>Patel</u>and <u>Priyanka Kumari</u> – July 2022 									
Books	 Trueman's UGC-NET Electronic Sciences - <u>Danika Publication</u> –Jan 23 GATE 2023 : Electronics & Communication Engineering - 36 Years' Topic-wise Previous Solved Papersby G.K. Publications (P) LtdMarch 2022 									
Reference Books	 Handbook Series of Electronics & Communication Engineering by <u>Experts Compilation</u>Jan 2013 Objective Electronics & Telecommunication Engineering by <u>M.P.Sinha</u>, Neetu Singh- Jan 2012 									
Website Link	 <u>http://www.sanfoundry.com</u> <u>https://www.geeksforgeeks.org</u> 									
L-Lecture	T- Tutorial	P-Practical	C-Credit							

Course Code	Со	ourse Title	è		Cou Ty	rse pe	Se	Sem		L	Т	Р	С
23M6UEL OE1	ELECT COMMU COMPE	TRONICS NICATIO ETITIVE E	AND N FO XAM	R	ONLINE- COMPETITI VI VE		VI 2		2	-	-	2	
CO-PO Mapping:													
CO Number	P01	P02	P0 3	P0 4	P05	PS	01	PSC	02 P	SO3	PSO 4	P	805
CO1	М	М	S	S	S	Ν	1 S			S	S		S
CO2	S	S	S	S	S	S	S S		S S		S		S
CO3	S	S	S	S	S	S	S S		S		S		S
CO4	S	S	S	S	S	Ν	1	S		S	S		S
CO5	S	S	S	S	S	S	5	S		S	S		S
Level of Corr	elation betwe	en CO and	PO: I	L-LO	W, M-N	<i>M</i> EDIU	JM, S-	STRO	NG				
Tutorial Sch	edule		N 01	ET/SI	ET/GAT mock tes	TE/CEI st	Г/TRB	Old	question	ı pap	ers —s	olutio	ns –
Teaching and Learning Methods Self-structure					Self-study, Group discussion ,Chalk and Talk, Audio-Video Learning, learning through mock test								
Assessment N	Methods		1(ex)0 m kamin	ultiple ations p	choice assing	quest minim	tions t tum is t	nrough 50%	comp	uter ba	ised o	online

Prepared By	Verified By	Approved By Member Secretary
MR.I.BALAKRISHNAN	MR.S.ARULMANI	DR.S.SHAHITHA