



# SRI BHARATHI

ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)  
Kaikkurichi, Pudukkottai -622 303

[www.sbec.edu.in](http://www.sbec.edu.in)

## NAAC DOCUMENTS



Quality Indicator Frame Work

Criterion – 1

CURRICULAR ASPECTS

Submitted by

**IQAC**

**Internal Quality Assurance Cell**

Sri Bharathi Engineering College for Women



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

KAIKKURUCHI, PUDUKOTTAI – 622 303

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR 2021-2022 / EVEN SEMESTER

1.2 Academic Flexibility (30)

1.2.1 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

<b>Certificate Course Title:</b>	<b>DIFFERENT METHODOLOGIES FOR IC DESIGN</b>				
<b>Resource Person:</b>	<b>Resource Person 1:</b> Mrs.V.Nithyapoorani, AP / ECE		<b>Resource Peron 2:</b> Mrs.R.Yogeshwari, AP / ECE		
<b>Date of conduct from :</b>	<b>07.3.2022</b>	<b>To:</b>	<b>11.3.2022</b>	<b>Duration:</b>	<b>30 Hours</b>
<b>Organized Department :</b>	<b>ELECTRONICS AND COMMUNICATION ENGINEERING</b>				
<b>Participant Year:</b>	<b>2/ 3 /4</b>	<b>Semester:</b>	<b>EVEN</b>	<b>No. of Students Registered :</b>	<b>32</b>
<b>Venue:</b>	<b>Seminar Hall, ,Ground Floor, SBECW</b>				

**TABLE OF CONTENTS**

<b>SNO</b>	<b>DOCUMENT</b>	<b>PAGE-NO</b>
1	Certificate Course Circular	3-3
2	Certificate Course Syllabus and Schedule	4-4
3	List of students participants	5-6
4	Attendance Of Students	7-8
5	Certificate Course Report	9-9
6	Course Completion Certificates	10-12
7	Certificate Course Test Paper	13-15
8	Certificate Course Answer Key	16-16
9	Certificate Course Test Answer Sheet-Sample	17-25
10	Certificate Course Mark Statement	25-26





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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING ACADEMIC YEAR 2021-2022/EVEN SEMESTER

### DEPARTMENT CIRCULAR

Date: 21.02.2022

Certificate Course offered by the Department of ECE will be conducted for all Second, Third and Final year students on “**Different Methodologies for IC Design**” in our college campus from 07.03.2022 to 11.03.2022. Certificates will be issued to the eligible participants at the end of the course.

S.No	Name of the Course	Resource Person
1	Different Methodologies for IC Design	<b>1.Mrs.V.NITHYAPOORANI,</b> Assistant Professor/ECE, Department of ECE.
		<b>2.Mr.C.PALANIYAPPAN,</b> Assistant Professor/ECE, Department of ECE.

Cc:

- Principal's Office
- IQAC Coordinator
- Class In charges- II ,III & IV Year
- II ,III & IV Year ECE Students
- Notice Board

  
**HoD/ECE**  
HOD / ECE

SRI BHARATHI ENGINEERING  
COLLEGE FOR WOMEN  
KAIKKURICHI,  
PUDUKKOTTAI - 622 303

  
**Dr. S. THILAGAVATHI M.E., Ph.D.,**  
PRINCIPAL  
SRI BHARATHI ENGINEERING  
COLLEGE FOR WOMEN  
Kaikkurichi - 622 303, Pudukkottai: Dt.





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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR 2021-2022/EVEN SEMESTER

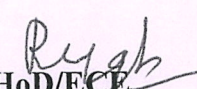
Certificate Course on “Different Methodologies for IC Design”

## SYLLABUS

S.NO	TOPIC COVERED	DURATION (in hours)	DATE	RESOURCE PERSON
1	Integration Scales and Applications	3	7.03.2022	Mrs.V.Nithyapoorani
2	Device Modelling for Digital ICs MOSFETs Layout and fabrication related topics.	3	7.03.2022	Mr.C.Palaniyappan
3	The Inverter CMOS: DC and transient characteristics.	3	8.03.2022	Mr.C.Palaniyappan
4	Basic Logic Families - CMOS Logic Circuits - Combinational logic gates- Dynamic circuits and clocking	3	8.03.2022	Mrs.V.Nithyapoorani
5	Digital Logic Units	3	9.03.2022	Mrs.V.Nithyapoorani
6	Sequential design and timing	3	9.03.2022	Mr.C.Palaniyappan
7	Arithmetic logic circuits	3	10.03.2022	Mrs.V.Nithyapoorani
8	Memories Cells and Arrays: SRAMs, DRAMs	3	10.03.2022	Mr.C.Palaniyappan
9	Applications to Practical Design Problems	3	11.03.2022	Mr.C.Palaniyappan
10	Examples from current literature including microprocessors, control systems, and signal processing.	3	11.03.2022	Mrs.V.Nithyapoorani
<b>Total Hours</b>			<b>30</b>	

  
Course Coordinator

  
Dr. S.THILAGAVATHI M.E., Ph.D.,  
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SRI BHARATHI ENGINEERING  
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Kaikkurichi - 622 303, Pudukkottai, DL

  
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**DEPARTMENT OF ELECTRONICS AN COMMUNICATIONENGINEERING**  
**ACADEMIC YEAR EVEN SEMESTER (2021-2022)**

**STUDENT PARTICIPATION LIST FOR CERTIFICATE COURSE PROGRAM**

**Different Methodologies for IC Design**

S.NO	REG.NO	NAME	YEAR & BRANCH
1	912620106001	ABIRAMI S	II & ECE
2	912620106002	ANUSHYA M	II & ECE
3	912620106003	ARTHI S	II & ECE
4	912620106004	JEYASRI K	II & ECE
5	912620106006	SENPAGAHARINI V	II & ECE
6	912620106007	SONIYA P	II & ECE
7	912620106301	ABITHA S	II & ECE
8	912620106302	DESIKA G	II & ECE
9	912620106303	SABAREESWARI S	II & ECE
10	912620106304	SUBBULAKSHMI P	II & ECE
11	912619106001	AASHIMA M	III & ECE
12	912619106002	ANANTHI P	III & ECE
13	912619106004	JAFFARNISHA R	III & ECE
14	912619106005	MAHESWARI K	III & ECE
15	912619106006	MANISHA S	III & ECE
16	912619106007	MEGAVADHANA A	III & ECE
17	912619106008	PRIYANGA R	III & ECE
18	912619106009	RAGAVI V	III & ECE
19	912619106010	RAJAPRABA M	III & ECE
20	912619106011	SASIKA K	III & ECE
21	912618106001	ANUSHAA S	IV & ECE
22	912618106002	ARIVARASI A	IV & ECE
23	912618106003	ASMATH HAZEENA N	IV & ECE
24	912618106004	ATCHAYA R	IV & ECE
25	912618106005	JAYAPRIYA T	IV & ECE
26	912618106006	JAYASRI M	IV & ECE
27	912618106007	NAGALAKSHMI P	IV & ECE

**D. S. THILAGAVATHI M.E., Ph.D.,**

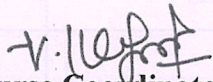
**PRINCIPAL**

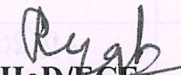
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S.NO	REG.NO	NAME	YEAR & BRANCH
28	912618106008	NAVITHRA D	IV& ECE
29	912618106009	ROHINI K	IV& ECE
30	912618106010	SOUNTHARYA P	IV& ECE
31	912618106012	THAIYAL NAYAGI K	IV& ECE
32	912618106701	JANANILR	IV& ECE

  
Course Coordinator

  
HoD/ECE

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KAIKKURICHI, PUDUKKOTTAI-622 303

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING  
ACADEMIC YEAR EVEN SEMESTER (2021-2022)

## ATTENDANCE SHEET FOR CERTIFICATE COURSE PROGRAM-DIFFERENT METHODOLOGIES FOR IC DESIGN

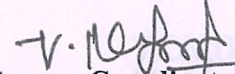
S.No	REG. NO	NAME	YEAR/ BRANCH	07.3.2021		8.3.2021		9.3.2021		10.03.2021		11.03.2021		NO. OF SESSIONS ATTENDED	SIGN OF STUDENT
				F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N		
1	912620106001	ABIRAMI S	II/ECE	/	/	/	/	/	/	/	/	/	/	10	S. Anji
2	912620106002	ANUSHYA M	II/ECE	/	/	/	/	/	/	/	/	/	/	10	M. Anushya
3	912620106003	ARTHI S	II/ECE	/	/	/	/	/	/	/	/	/	/	10	S. Arthi
4	912620106004	JEYASRI K	II/ECE	/	/	a	a	/	/	/	/	/	/	8	K. Jeyasri
5	912620106006	SENPAGAHARINI V	II/ECE	/	/	/	/	/	/	/	/	/	/	10	N. Shreya
6	912620106007	SONIYA P	II/ECE	/	/	/	/	/	/	/	/	/	/	10	P. Soniya
7	912620106301	ABITHA S	II/ECE	/	/	/	/	/	/	/	/	/	/	10	Abitha S
8	912620106302	DESIKA G	II/ECE	/	/	/	/	/	/	a	/	/	/	9	Desika
9	912620106303	SABAREESWARI S	II/ECE	/	/	/	/	/	/	/	/	/	/	10	S. Sabari
10	912620106304	SUBBULAKSHMI P	II/ECE	a	a	/	/	/	/	/	/	/	/	8	Subbula
11	912619106001	AASHIMA M	III/ECE	/	/	/	/	/	/	/	/	/	/	10	Aashima
12	912619106002	ANANTHI P	III/ECE	/	/	/	/	/	/	a	/	/	/	9	Ananthi
13	912619106004	JAFFARNISHA R	III/ECE	/	/	/	/	/	/	a	a	/	/	8	R. Jaffar
14	912619106005	MAHESWARI K	III/ECE	/	/	/	/	/	/	/	/	/	/	10	Maheswari
15	912619106006	MANISHA S	III/ECE	/	/	/	/	/	/	/	/	/	/	10	S. Manisha

Dr. S. THILAGAVATHI, M.E., Ph.D.  
PRINCIPAL

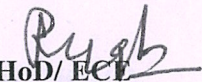
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16	912619106007	MEGAVADHANA A	III/ECE	a	/	/	/	/	/	/	/	/	/	9	Amo A
17	912619106008	PRIYANGA R	III/ECE	/	/	/	/	/	/	/	/	/	/	10	R.B
18	912619106009	RAGAVI V	III/ECE	/	/	/	/	/	/	a	a	/	/	8	Rt
19	912619106010	RAJAPRABA M	III/ECE	/	/	/	/	/	/	/	/	/	/	10	M.T.P
20	912619106011	SASIKA K	III/ECE	/	/	/	/	/	/	/	/	/	/	10	f.p.d.
21	912618106001	ANUSHAA S	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Amsha.
22	912618106002	ARIVARASI A	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Arivarasi. A
23	912618106003	ASMATH HAZEENA N	IV/ECE	/	/	a	a	/	/	/	/	/	/	8	Asmatha
24	912618106004	ATCHAYA R	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	ATCHAYA R
25	912618106005	JAYAPRIYA T	IV/ECE	/	/	/	/	/	/	a	a	/	/	8	Jayapriya
26	912618106006	JAYASRI M	IV/ECE	/	/	a	a	/	/	/	/	/	/	8	Jayasri
27	912618106007	NAGALAKSHMI P	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Nand
28	912618106008	NAVITHRA D	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Nandu
29	912618106009	ROHINI K	IV/ECE	/	/	/	/	/	/	a	/	/	/	9	Rohini
30	912618106010	SOUNTHARYA P	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Soudi
31	912618106012	THAIYAL NAYAGI K	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Thaiyal Nayagi
32	912618106701	JANANI.R	IV/ECE	/	/	/	/	/	/	/	/	/	/	10	Janani.R

  
Course Coordinator

  
Dr. S.THILAGAVATHI M.E., Ph.D.,  
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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

## Report on Certificate Course

Title: Different Methodologies for IC Design

Resource Person:

**1.Mrs.V.NITHYAPOORANI,**  
Assistant Professor/ECE.

**2.Mr.C.PALANIYAPPAN,**  
Assistant Professor/ECE.

Date of conduct from :

7.3.2022

To:

11.3.2022

Duration:

30 Hours

Organized Department :

Electronics and Communication Engineering

Participant Year:

2/ 3 /4

Semester:

ODD

No. of Students Registered :

32

Venue:

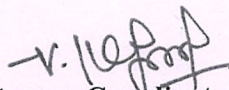
Seminar Hall, ,Ground Floor, SBECW

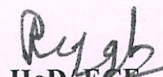
### **Outcome of Certificate Course (CC) :At the end of Course ,Students can able to**

- Analyze functionality of digital circuits including combinational, sequential, and memory
- Characterize speed, energy consumption, and robustness of combinational, sequential, and memory circuits.
- Design combinational, sequential, and memory circuits to meet specified functionality, speed, energy, and robustness targets
- Perform simulation of digital circuits, and write reports conforming to technical writing standards.
- Understand EDA tool design flow for digital IC design.
- No. of students successfully completed the certificate course is **32 Students** based on the following Assessment process.

### **Assessment Process**

- Students securing **more than 60% on total score** and secured more than **75%** in attendance is eligible to receive the certificate for the Certificate course conducted
- Total Score = (0.5 \*Attendance in CC out of 100 percentage + 0.5 \*Test mark in CC out of 100 marks)

  
Course Coordinator

  
HoD/ECE  
HOD / ECE

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PUDUKKOTTAI - 622 303.

  
Principal  
  
**Dr. S.THILAGAVATHI M.E.,**  
PRINCIPAL  
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**KAIKKURICHI, PUDUKKOTTAI-622303**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**CERTIFICATE OF PARTICIPATION**

This is to Certify that Mr/Ms. **ABIRAMIS** (Reg.No: **912620106001**), II ECE has successfully completed Certificate Course on “ Different Methodologies for IC Design” held at our college campus from 07.03.2022 to 11.03.2022 for the academic year 2021-2022.

  
**COURSE COORDINATOR**

  
**Dr. S. THILAGAVATHI M.E., Ph.D.,**  
**PRINCIPAL**  
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**COLLEGE FOR WOMEN**  
**Kaikkurichi - 622 303, Pudukkottai Dt.**

  
**PRINCIPAL**





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**KAIKKURICHI, PUDUKKOTTAI-622303**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**CERTIFICATE OF PARTICIPATION**

This is to Certify that Mr/Ms. AASHIMA.M (Reg.No: 912619106001), III ECE has successfully completed Certificate Course on " Different Methodologies for IC Design" held at our college campus from 07.03.2022 to 11.03.2022 for the academic year 2021-2022.

  
COURSE COORDINATOR

  
Dr. S.THILAGAVATHI M.E.,Ph.D.,  
PRINCIPAL  
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PRINCIPAL





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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**CERTIFICATE OF PARTICIPATION**

This is to Certify that Mr/Ms. **JAYASRI.M** (Reg.No: **912618106006**), IV ECE has  
Successfully completed Certificate Course on “ Different Methodologies for IC Design”  
held at our college campus from 07.03.2022 to 11.03.2022 for the academic year 2021-2022.

**COURSE COORDINATOR**

**Dr. S.THILAGAVATHI M.E., Ph.D.,**  
**PRINCIPAL**  
**SRI BHARATHI ENGINEERING**  
**COLLEGE FOR WOMEN**  
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**PRINCIPAL**





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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Name of the Student :

Year/Sem:

AU Register Number:

Certificate Course on “Different Methodologies For IC Design”

## MCQ QUESTIONS ( 25X1 = 25 Marks)

1. An IC contains-----
  - a) Passive elements
  - b) Active elements
  - c) Both Passive and active elements
  - d) None of the above
2. The most complicated component fabricated on IC is -----?
  - a) Diode
  - b) Resistor
  - c) Transistor
  - d) Conductor.
3. The bottom layer of an IC serves as?
  - a) Connector layer
  - b) Insulating layer
  - c) Substrate
  - d) None of the above
4. All the active and passive elements are grown on the-----layer of the IC?
  - a) First substrate layer
  - b) The second layer which is a single crystal extension of the substrate
  - c) The SiO<sub>2</sub> layer
  - d) The Polysilicon layer
5. The substrate is typically of size-----?
  - a) 25 mils thick
  - b) 16 mils thick
  - c) 2 mils thick
  - d) 6 mils thick.
6. The second layer of IC is of ----- mils thickness?
  - a) 2
  - b) 1
  - c) 5
  - d) 0
7. The diffusion of impurities is done on the-----layer?
  - a) Substrate layer
  - b) Second layer
  - c) SiO<sub>2</sub> layer
  - d) All of the above
8. IC fabrication depends upon---?
  - a) Materials
  - b) process
  - c) design technologies
  - d) all the above
9. ----- protects the wafer from contamination due to impurities?
  - a) SiO<sub>2</sub> layer
  - b) Masks
  - c) Photo resist layer
  - d) Diffusion

**Dr. S.THILAGAVATHI M.E.,Ph.D.,**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Academic Year 2021-2022/EVEN Semester

Certificate Course on **Different Methodologies for IC design**

MCQ ANSWER KEY

1	C	6	B	11	C	16	D	21	C
2	C	7	B	12	D	17	B	22	B
3	C	8	D	13	A	18	C	23	A
4	B	9	A	14	B	19	D	24	A
5	D	10	B	15	A	20	B	25	D

  
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10. Selective etching is done using-----?

- a) Diffusion process
- b) Photolithography process
- c) Metallization process
- d) Masking process

11. Usually, the substrate of IC is made up of-----

- a) Germanium
- b) metal
- c) Silicon SiO<sub>2</sub>
- d) Aluminum.

12. The process of forming an IC on a single silicon chip is known as-----

- a) Single Process IC
- b) Monolithic IC
- c) Epitaxial IC
- d) All the above

13. The process of forming an IC on a single silicon chip is known as-----

- a) Independent of the substrate
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14. Silicon dioxide helps the penetration of impurities.

- a) True
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- c) Partially
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- a) Different isolation regions
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16. To make p-n junctions reverse biased, with respect to isolation region the p-type substrate must also be held at---?

- a) Zero
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17. While operating circuit, the isolation will be lost if the p-n junction is-----

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18. To prevent the connection between two isolation islands, the concentration of acceptor ions between isolation regions should be...?

- a) Zero
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- a) Transistor b) base regions Resistors
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- a) A large concentration of phosphorus  
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Name of the Student : Rajaprabam

Year/Sem: III / V

AU Register Number: 912619106010

Certificate Course on “Different Methodologies For IC Design”

## MCQ QUESTIONS ( 25X1 = 25 Marks)

1. An IC contains-----.
- a) Passive elements  
b) Active elements  
c) Both Passive and active elements  
d) None of the above
2. The most complicated component fabricated on IC is -----?
- a) Diode  
b) Resistor  
c) Transistor  
d) Conductor.
3. The bottom layer of an IC serves as?
- a) Connector layer  
b) Insulating layer  
c) Substrate  
d) None of the above
4. All the active and passive elements are grown on the-----layer of the IC?
- a) First substrate layer  
b) The second layer which is a single crystal extension of the substrate  
c) The SiO<sub>2</sub> layer  
d) The Polysilicon layer
5. The substrate is typically of size-----?
- a) 25 mils thick  
b) 16 mils thick  
c) 2 mils thick  
d) 6 mils thick.
6. The second layer of IC is of ----- mils thickness?
- a) 2  
b) 1  
c) 5  
d) 0
7. The diffusion of impurities is done on the-----layer?
- a) Substrate layer  
b) Second layer  
c) SiO<sub>2</sub> layer  
d) All of the above
8. IC fabrication depends upon---?
- a) Materials  
b) process  
c) design technologies  
d) all the above
9. ----- protects the wafer from contamination due to impurities?
- a) SiO<sub>2</sub> layer  
b) Masks  
c) Photo resist layer  
d) Diffusion

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10. Selective etching is done using-----?

- a) Diffusion process  
 b) Photolithography process  
c) Metallization process  
d) Masking process

11. Usually, the substrate of IC is made up of-----

- a) Germanium  
b) metal  
 c) Silicon SiO<sub>2</sub>  
d) Aluminum.

12. The process of forming an IC on a single silicon chip is known as-----

- a) Single Process IC  
b) Monolithic IC  
c) Epitaxial IC  
 d) all the above

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Name of the Student : *Thaiyal Nayagi . K* Year/Sem: *final year / VIII*

AU Register Number: *912618106012*

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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR EVEN SEMESTER (2021-2022)

### MARK SHEET FOR CERTIFICATE COURSE- DIFFERENT METHODOLOGIES FOR IC DESIGN

S.NO	REGISTER NUMBER	NAME	YEAR & BRANCH	Attendance (A)		VAC –MCQ TEST (B)		OVERALL MARK(100) (50% of A + 50% of B)
				No.of Sessions Attended	Marks (100)	No.of Correct Answer	Marks (100)	
1	912620106001	ABIRAMI S	II /ECE	10	100	22	88	94
2	912620106002	ANUSHYA M	II /ECE	10	100	19	76	88
3	912620106003	ARTHI S	II /ECE	10	100	18	72	86
4	912620106004	JEYASRI K	II /ECE	8	80	20	80	80
5	912620106006	SENPAGAHARINI V	II /ECE	10	100	20	80	90
6	912620106007	SONIYA P	II /ECE	10	100	18	72	86
7	912620106301	ABITHA S	II /ECE	10	100	19	76	78
8	912620106302	DESIKA G	II /ECE	9	90	18	72	81
9	912620106303	SABAREESWARI S	II /ECE	10	100	18	72	86
10	912620106304	SUBBULAKSHMI P	II /ECE	8	80	17	68	74
11	912619106001	AASHIMA M	III /ECE	10	100	22	88	94
12	912619106002	ANANTHI P	III /ECE	9	90	19	76	83
13	912619106004	JAFFARNISHA R	III /ECE	8	80	18	72	76
14	912619106005	MAHESWARI K	III /ECE	10	100	19	76	88

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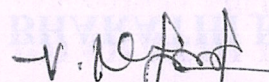


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15	912619106006	MANISHA S	III /ECE	10	100	22	88	94
16	912619106007	MEGAVADHANA A	III /ECE	9	90	18	72	81
17	912619106008	PRIYANGA R	III /ECE	10	100	19	76	88
18	912619106009	RAGAVI V	III /ECE	8	80	21	84	82
19	912619106010	RAJAPRABA M	III /ECE	10	100	23	92	96
20	912619106011	SASIKA K	III /ECE	10	100	21	84	92
21	912618106001	ANUSHAA S	IV /ECE	10	100	23	92	96
22	912618106002	ARIVARASI A	IV /ECE	10	100	19	76	88
23	912618106003	ASMATH HAZEENA N	IV /ECE	8	80	19	76	78
24	912618106004	ATCHAYA R	IV/ECE	10	100	18	72	86
25	912618106005	JAYAPRIYA T	IV /ECE	8	80	23	82	81
26	912618106006	JAYASRI M	IV /ECE	8	80	18	72	76
27	912618106007	NAGALAKSHMI P	IV /ECE	10	100	18	72	86
28	912618106008	NAVITHRA D	IV /ECE	10	100	19	76	88
29	912618106009	ROHINI K	IV /ECE	9	90	18	72	81
30	912618106010	SOUNTHARYA P	IV /ECE	10	100	20	80	90
31	912618106012	THAIYAL NAYAGI K	IV /ECE	10	100	19	76	88
32	912618106701	JANANI.R	IV /ECE	10	100	18	72	86

  
Course Coordinator

  
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