

## SRI BHARATHI

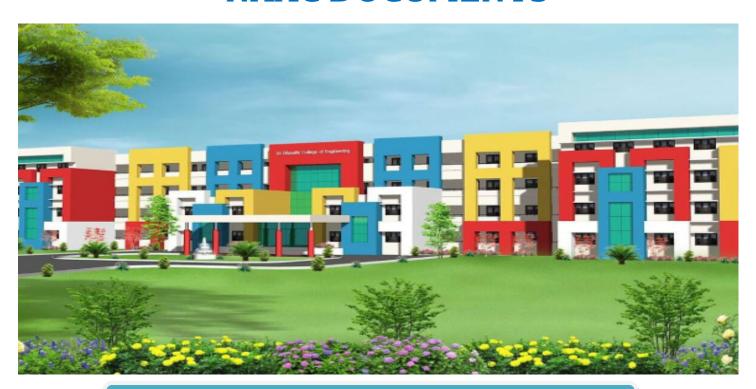
ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai -622 303

www.sbec.edu.in

## **NAAC DOCUMENTS**



Quality Indicator Frame Work

# Criterion – 1 CURRICULAR ASPECTS

Submitted by

IQAC
Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

# AND THE PARTY OF T

### 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

Certificate Course	DIF	TERE	NT MET	HODOLO	GIES	FOL	R IC DESIG	!N	
Title:			VI WILL	HODOLO	GILS	101	CIC DESIG		
Resource Per	cson:		<b>Irce Pers</b> .Nithyapoo CE	-	Resource Peron 2: Mrs.R.Yogeshwari, AP / ECE				
Date of cond	uct fro	m :	07.3.2022	2	To:	11.3	.2022	<b>Duration:</b>	30 Hours
Organized D	epartm	nent:	ELECTI	RONICS AN	D COM	<b>1MU</b>	NICATION E	CNGINEERI	NG
Participant Year: 2/3/4			Semester: EVEN No. of Students Registered: 32						
Venue: Se	minar l	Hall, ,G	Fround Flo	or, SBECW	,				,

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## 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 to11.03.2022. 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	1.Mrs.V.NITHYAPOORANI, Assistant Professor/ECE, Department of ECE.  2.Mr.C.PALANIYAPPAN, 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.Ch.D.,

PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkotia: Dt.



(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25) Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

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

## 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
	Total Hours		30	

Course Coordinator

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkota Dt. HOD / ECE

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



## SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25) Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

## 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

SALBHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkotiai Dt.

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	JANANI.R	IV& ECE

V. U. Course Coordinator

HOD / ECE

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

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt.



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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/	07.3.	2021	8.3.2	2021	9.3.2	2021	10.03.	.2021	11.03.2	2021	NO. OF SESSIONS	SIGN OF STUDENT
5.110	ALC: IVO	THANKAL NAVAGI S	BRANCH	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	ATTENDED	STUDENT
1	912620106001	ABIRAMI S	II/ECE	1	1	1	1	1	1	1	1	1	1	10	s.ghij
2	912620106002	ANUSHYA M	II/ECE	1	1	1	1	1	1	1	1	1	1	10	m. Anushya.
3	912620106003	ARTHI S	II/ECE	1	1	1	1	1	1	1	1	1	1	10	S. Arthi
4	912620106004	JEYASRI K	II/ECE	,	1	a	a	1	1	1	1	1	1	8	K. Juft
5	912620106006	SENPAGAHARINI V	II/ECE	1	1	1	1	1	1	1	1	1	1	10	w. shiphi
6	912620106007	SONIYA P	II/ECE	1	1	1	1	1	1	1	1	1	1	10	P. Somfer
7	912620106301	ABITHA S	II/ECE	1	1	1	1	1	1	1	1		1	10	Aby. 3
8	912620106302	DESIKA G	II/ECE	1	1	1	1	1	1	a	1	1	1	9	Birca
9	912620106303	SABAREESWARI S	II/ECE	1	/	1	1	1	1	1	1	/	1	10	Scalnij
10	912620106304	SUBBULAKSHMI P	II/ECE	a	a	1	1	1	1	1	1	1	1	8	Sul
11	912619106001	AASHIMA M	III/ECE	1	1	1	1	1	1	1	1	1	1	10	Aoss.
12	912619106002	ANANTHI P	III/ECE	1	1	1	1	1	1	a	1	. ,	1	9	& Aigh.
13	912619106004	JAFFARNISHA R	III/ECE	1	1	1	1	1	1	a	a	1	1	8	R. 8+
14	912619106005	MAHESWARI K	III/ECE	1	1	1	1	1	1	,	1	1	1	10	Mahm
15	912619106006	MANISHA S	III/ECE	1	1	1	1	1	1	/	PRINC		/	0 10	8.12g
16	912619106007	MEGAVADHANAA	MARCE			(		5	S			R WOME			7000

16	912619106007	MEGAVADHANA A	III/ECE	a	1	1	1	1	13	1	1	,	1	9	AMO
17	912619106008	PRIYANGA R	III/ECE	/	1	1	1	1	93	1197	1	1	1	to	R.Q.
18	912619106009	RAGAVI V	III/ECE	1	1	1	1	,	1	a	a	/	1	-8-	Pt
19	912619106010	RAJAPRABA M	III/ECE	1	1	1	1	1	1	1	1	/	1	lo	MALLE
20	912619106011	SASIKA K	III/ECE	1	1	1	1	1	1	,	1	1	1	10	£:00-
21	912618106001	ANUSHAA S	IV/ECE	-	1	/	1	1	1	1	1	1	1	10	Southa.
22	912618106002	ARIVARASI A	IV/ECE	1	1	1	-	1	1	1	/	1	1	10	dievarasi. t
23	912618106003	ASMATH HAZEENA N	IV/ECE	1	1	a	a	1	1	1	1	, /	1	8	Buthuta
24	912618106004	ATCHAYA R	IV/ECE	/	1	1	1	1	1	1	1	/	1	10	ATCHOTA F
25	912618106005	JAYAPRIYA T	IV/ECE	1	1	1	1	+	1	a	a	1	1	8	JayatRija
26	912618106006	JAYASRI M	IV/ECE	1	1	a	a	1	1	1	1	1	1	8-	Jayat Rija Jayas Ri
27	912618106007	NAGALAKSHMI P	IV/ECE	1	1	1	1	1	1	1	1	1	1	10	noul
. 28	912618106008	NAVITHRA D	IV/ECE	1	1	1	1	1	1	1	1	1	1	10	nem
29	912618106009	ROHINI K	IV/ECE	1	1	1	1	1	1	a	1	1	1	9	Dodry:
30	912618106010	SOUNTHARYA P	IV/ECE	1	1	1	1	1	-	1	1	1	1	10	Bobi
31	912618106012	THAIYAL NAYAGI K	IV/ECE	1	1	. /	1	1	1	1	1	1	1	10	That way of
32	912618106701	JANANI.R	IV/ECE	1	1	1	1	1		1	1	1	1	10	Janani.P

Course Coordinator

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt. HOD/ECE

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN KAIKKURICHI,

PUDUKKOTTAI - 622 303

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25) 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 <u>32 Students</u> 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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

KAIKKURICHI, PUDUKKOTTAI - 622 303. Principal 6

r. S.THILAGAVATHIM.E.

SRI BHARATHI ENGINEERII COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai



# SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (Approved by AICTE, Affiliated to Anna University) KAIKKURICHI, PUDUKKOTTAI-622303

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

## **CERTIFICATE OF PARTICIPATION**

This is to Certify that Mr/Ms. **ABIRAMI.S** (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.,

SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN

**PRINCIPAL** 



# SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (Approved by AICTE, Affiliated to Anna University) 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.,

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303. Pudukkottai DL PRINCIPAL



# SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (Approved by AICTE, Affiliated to Anna University) KAIKKURICHI, PUDUKKOTTAI-622303

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303. Pudukkottai Dt. PRINCIPAL

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## SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai 25) Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Name of the Student:	Name	of	the	Stud	ent	:
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Year/Sem:

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt.

## **AU Register Number:**

Certificate Course on "Different Methodologies For IC Design"

## MCQ QUESTIONS (25X1 = 25 Marks)

1. An IC contains		
a) Passive elements	c) Both Passive and active elements	
b) Active elements	d) None of the above	
2. The most complicated component fabricated	on IC is?	
a) Diode	c) Transistor	
b) Resistor	d) Conductor.	
3. The bottom layer of an IC serves as?		
a) Connector layer	c) Substrate	
b) Insulating layer	d) None of the above	
impucifies.	14. Silicon dioxide helps the penetration of	
4. All the active and passive elements are grown	n on thelayer of the IC?	
a) First substrate layer		
b) The second layer which is a single crystal		
c) The SiO2 layer	d) The Polysilicon layer	
5 TH		
5. The substrate is typically of size?	energer nemotes same to	
a) 25 mils thick	c) 2 mils thick	
b) 16 mils thick	d) 6 mils thick.	
	Substrate (mast auso de neio at	
6. The second layer of IC is of mils th		
a) 2 b) 1	c) 5 d) 0	
7. The diffusion of impurities is done on the	laver?	
a) Substrate layer	c) SiO2 layer	
b) Second layer bealing to a go (b)	d) All of the above	
•		
8. IC fabrication depends upon?		
a) Materials	c) design technologies	
b) process	d) all the above	
d) Equal to that of the substrate.	b) Lower than that of the substrate	
9 protects the wafer from contamination d	ue to impurities?	′
a) SiO2 layer	c) Photo resist layer	)
b) Masks	d) Diffusion	
Or S.THILAGAVATHI M.E.	Dr. S.THILAGAVATHI M.E.	,Ph
	PRINCIPAL	

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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

10. Selective etching is done using?	
a) Diffusion process	c) Metallization process
b) Photolithography process	d) Masking process
11. Usually, the substrate of IC is made up of	MCO OUESTICHE
a) Germanium	c) Silicon SiO2
b) metal	d) Aluminum.
12. The process of forming an IC on a single	silicon chip is known as
a) Single Process IC	c) Epitaxial IC
b) Monolithic IC	d) all the above
13. The process of forming an IC on a single	silican chin is known as
a) Independent of the substrate	c) Equal to that of the substrate
b) Dependent on the substrate	d) Zero
b) Dependent on the substrate	
14. Silicon dioxide helps the penetration of i	mpurities.
a) True	c) Partially
b) False	d) All the above
15. Silicon dioxide helps the penetration of in	mourities
a) Different isolation regions	c) Epitaxial region
b) Same isolation regions	d) Photoresist region
b) bame isolation regions	d) I notoresist region
16. To make p-n junctions reverse biased, wi substrate must also be held at?	th respect to isolation region the p-type
a) Zero	c) Positive potential
b) Unity	d) Negative potential
17. While operating circuit, the isolation will	be lost if the p-n junction is
a) Reverse biased	c) Short circuited
b) Forward biased	d) Open circuited
18. To prevent the connection between two is ions between isolation regions should be	solation islands, the concentration of acceptor
a) Zero	c) Higher than that of the substrate
b) Lower than that of the substrate	d) Equal to that of the substrate.
19. Using base diffusion step are formed	d on IC?
a) Transistor b) base regions Resistors	c) Resistors d) All of the above
Dr. S.THILAGAVATHI M.	Dr. S.THILAGAVATHI M.E., Ph.D., PRINCIPAL
SRI BHARATHI ENGINEE	SRI BHARATHI ENGINEERING

COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkotic 21.

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai 25) Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

20.	In base diffusion stepimpur	ities are diffused?
	a) p-type	c) Both p & n-type
	b) n-type	d) None of the above.
21.	The resistivity of the base layer is	the isolation region?
	a) Equal to .	c) Higher than
	b) Lower than	d) Reciprocal
22.	In emitter diffusion step are f	ormed?
	a) Transistor	c) Resistors
	b) emitters	d) Only a & c
23.	. Aluminum is a type impu	rity in a silicon
	a) N-type	c) Inert
	b) P-type	d) Metallic
24	prevents the formation o	f the p-n junction when aluminium is used for ohmic
	a) A large concentration of phosph	orus
	b) A large concentration of Silicon	
	c) A large concentration of Polysili	
	d) None of these	
-25	. The interconnections are made duri	ng
	a) Emitter diffusion process	
	b) Photolithography process	
	c) Epitaxial growth	
	d) Metallization process	

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

PRINCIPAL SRI BHARATHI ENGINEERING

COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.



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

### MCQ ANSWER KEY

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

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt.

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai 25) Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Name of the Student: Sowya . P	Year/Sem: 11 / 1V				
<b>V</b>	9. Selective etching is done using?				
	Ver Photolithauraniye moreses				
Certificate Course on "Different	Methodologies For IC Design"				
a) Passive elements b) Active elements d) None of the above  The most complicated component fabricated on IC is? a) Diode b) Resistor d) Conductor.  The bottom layer of an IC serves as? a) Connector layer e) Both Passive and active elements d) None of the above e) Fransistor d) Conductor.					
1. An IC contains	o) metal				
a) Passive elements	e) Both Passive and active elements				
b) Active elements	d) None of the above				
2. The most complicated component fabricated	on IC is?				
a) Diode	e) Transistor				
b) Resistor	d) Conductor.				
3 The bottom layer of an IC serves as?					
015.3.1.0	c) Substrate				
b) Insulating layer					
<ul><li>a) First substrate layer</li><li>b) The second layer which is a single crystal</li></ul>	extension of the substrate				
5. The substrate is typically of size?					
	c) 2 mils thick				
-b) 16 mils thick	d) 6 mils thick.				
6. The second layer of IC is of mils the	nickness?				
47. The diffusion of impurities is done on the	layer?				
	housed become the				
8. IC fabrication depends upon?					
	c) design technologies				
d) Equal to that of the substrate	b) Lower than that of the substitute				

9. ---- protects the wafer from contamination due to impurities?

siO2 layer

b) Masks

c) Photo resist layer d) Diffusion Dr. S.THILAGAVATHI M.E., Ph.D.,

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10. Selective etching is done using?	
a) Diffusion process	c) Metallization process
b) Photolithography process	d) Masking process
aguesti da ab i degelonomista ta	edomer, ho seeks substituted
11. Usually, the substrate of IC is made up of	THE PART OWN
a) Germanium	e) Sílicon SiO2
b) metal	d) Aluminum.
12. The process of forming an IC on a single s	silicon chip is known as
a) Single Process IC	c) Epitaxial IC
b) Monolithic IC	d) all the above
et fransisior	
13. The process of forming an IC on a single s	
a) Independent of the substrate	c) Equal to that of the substrate
b) Dependent on the substrate	d) Zero
14 Ciliaan dianida balanda anno 4 di Ci	b) loxidation layer
14. Silicon dioxide helps the penetration of ir a) True	
b) False	c) Partially d) All the above
(b) I disc	d) All the above
15. Silicon dioxide helps the penetration of im	pourities
a) Different isolation regions	c) Epitaxial region
b) Same isolation regions	d) Photoresist region
,	The state of the s
16. To make p-n junctions reverse biased, with	h respect to isolation region the n-type
substrate must also be held at?	respect to isolation region the p type
ar Zero	c) Positive potential
b) Unity	d) Negative potential
W (9)	
17. While operating circuit, the isolation will	be lost if the p-n junction is
a) Reverse biased	c) Short circuited
b) Forward biased	d) Open circuited
18. To prevent the connection between two ise	
ions between isolation regions should be.	
a) Zero	Higher than that of the substrate
b) Lower than that of the substrate	d) Equal to that of the substrate.
Securities?	2 / solec) the water from contamination
19. Using base diffusion step are formed	
(Transistor b) base regions Resistors	c) Resistors d) All of the above
PRINCIPAL	Dr. <b>S.THILAGAVATHI</b> M.E.,Ph.D., PRINCIPAL
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COLLEGE FOR WOMEN

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20.	In base diffusion stepimpur	rities are diffused?
	a) p-type	c) Both p & n-type
	b))n-type	None of the above.
.21.	The resistivity of the base layer is	the isolation region?
	a) Equal to .	Higher than
	b) Lower than	d) Reciprocal
1 22.	In emitter diffusion step are	formed?
	a) Transistor	c) Resistors
	b) emitters	d) Only a & c
-/	7	
23.	Aluminum is a type impu	
	a) N-type	c) Inert
	b) P-type	d) Metallic
24	prevents the formation (	of the p-n junction when aluminium is used for ohmic
27	contact?	A MARCH TO THE STATE OF THE STA
	A large concentration of phosph	norus
	b) A large concentration of Silicor	
	c) A large concentration of Polysil	
	d) None of these	
	d) None of these	
~25	. The interconnections are made dur	ing
The	a) Emitter diffusion process	
1	b) Photolithography process	
	Epitaxial growth	
	d) Metallization process	
	a, Mountained process	

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b) Masks

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Name of the Student:	Rajapraba.m		Year/Sem: W	一/里
AU Register Number:	912619106010		isten process	uffill to
Certificate Course	e on "Different M	ethodolo	gies For IC De	esign"
Me	CQ QUESTIONS ( 25	5X1 = 25	Marks)	( )
An IC contains     a) Passive elements     b) Active elements	(C) Sincon d) Alund angle silicon cinp is kn		Passive and active e of the above	e elemer
2. The most complicated cor a) Diode b) Resistor	mponent fabricated on	IC is Trans d) Cond	sistor	
3. The bottom layer of an IC a) Connector layer b) Insulating layer	serves as?	Subsid) None	trate of the above	er indep b) Depe Silicon
<ul><li>4. All the active and passive</li><li>a) First substrate layer</li><li>The second layer which</li><li>c) The SiO2 layer</li></ul>		ension of		
5. The substrate is typically a) 25 mils thick b) 16 mils thick	of size?	c) 2 mil		
6. The second layer of IC is a) 2	s of mils thick	ness?	d) 0	
The diffusion of impuriti a) Substrate layer Second layer	es is done on thela	c) SiO2	layer f the above	
8. IC fabrication depends up a) Materials b) process	oon?	c) design	a technologies e above	
9 protects the wafer fr	om contamination due	A State of S	ties?	M

d) Diffusion Dr. S.THILAGAVATHI M.E., Ph.D., PRINCIPAL

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a) Diffusion process	a) Matallization process
	c) Metallization process
Thotolithography process	d) Masking process
11. Usually, the substrate of IC is made up of	£
a) Germanium	© Silicon SiO2
b) metal	d) Aluminum.
energy le surron ban suries 9 dien Feb	an Araminam.
12. The process of forming an IC on a single	silicon chin is known as
a) Single Process IC	c) Epitaxial IC
b) Monolithic IC	all the above
. Key Transistor	an the doore
13. The process of forming an IC on a single	silicon chin is known as
(a) Independent of the substrate	c) Equal to that of the substrate
b) Dependent on the substrate	d) Zero
bepondent on the substrate	a) Connector layer
14 Silicon dioxide helps the penetration of in	mourities revel appliable of d
a) True	c) Partially
B) False	d) All the above
Sup raise	d) All the above
15. Silicon dioxide helps the penetration of in	mourities
Different isolation regions	c) Epitaxial region
b) Same isolation regions	
b) Same isolation regions	d) Photoresist region
16 To make a a junctions reverse bised and	a) 25 mils thick
16. To make p-n junctions reverse biased, wit substrate must also be held at?	th respect to isolation region the p-type
	\D ''.'
a) Zero	c) Positive potential
b) Unity	Negative potential
17. While operating circuit, the isolation will	he lost if the p-n junction is
a) Reverse biased	c) Short circuited
(b) Forward biased	d) Open circuited
2011 of ward blased	d) Open circuited
18. To prevent the connection between two is	solation islands, the concentration of acceptor
ions between isolation regions should be.	
a) Zero	Higher than that of the substrate
如果我们就是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	
b) Lower than that of the substrate	d) Equal to that of the substrate.
10 Using base diffusion sten	Lon ICO
a) Fransistor b) base regions Resistors	
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b) Lower than that of the substrate  19. Using base diffusion step are formed a) Transistor b) base regions Resistors	c) Resistors (d) All of the above Dr. S.THILAGAVATHI M.E., Ph.D., PRINCIPAL

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20.	In base diffusion stepimput	rities are diffused?	
	a) p-type	c) Both p & n-type	
	(B)n-type	d) None of the above.	
21	The resistivity of the base layer is		
	a) Equal to	Higher than	
	b) Lower than	d) Reciprocal	
122	. In emitter diffusion step are	formed?	
/	a) Transistor	c) Resistors	
(	b) emitters	(e) Only a & c	
23	. Aluminum is a type impu	urity in a silicon	
	(a) N-type	c) Inert	
	b) P-type	d) Metallic	
24	prevents the formation contact?	of the p-n junction when aluminium is	s used for ohmic
	A large concentration of phosph	norus	
	b) A large concentration of Silicon		
	c) A large concentration of Polysi		
	d) None of these		
1-24	5. The interconnections are made dur	ing	
1	(a) Emitter diffusion process	****	
l	b) Photolithography process		
	c) Epitaxial growth		
	d) Metallization process		
	u) Wicianization process		

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Name of the Student: Thou yal Now	age. K Year/Sem: frinal year / 1/11
AU Register Number: 91261810601	- I make a district of their at their are district on a second of their areas.
Certificate Course on "Differen	t Methodologies For IC Design"
	The second secon
MCQ QUESTIONS	S (25X1 = 25 Marks)
1. An IC contains	1818 (1614 25 )
a) Passive elements	e) Both Passive and active elements
b) Active elements	d) None of the above
Of financial (o	Di zegoral alganit (6
2. The most complicated component fabricated	on IC is?  C) Transistor
<ul><li>a) Diode</li><li>b) Resistor</li></ul>	d) Conductor.
b) Resistor	d) Condition.
3. The bottom layer of an IC serves as?	Therefore the transfer of the
a) Connector layer	c) Substrate
b) Insulating layer	d) None of the above
<ul><li>a) First substrate layer</li><li>b) The second layer which is a single crysta</li><li>c) The SiO2 layer</li></ul>	l extension of the substrate d) The Polysilicon layer
5. The substrate is typically of size? a) 25 mils thick	c) 2 mils thick
b) 16 mils thick	et) 6 mils thick.
o) to lims thek	aubstrate must also be held ut
6. The second layer of IC is of mils t	thickness?
a) 2 b) 1	c) 5 d) 0
7. The diffusion of impurities is done on the-	layer?
a) Substrate layer	c) SiO2 layer
b) Second layer	d) All of the above
8. IC fabrication depends upon?	
a) Materials	c) design technologies
b) process	a) all the above
9 protects the wafer from contamination	
a) SiO2 layer	c) Photo resist layer
b) Masks	d) Diffusion Dr. S.THILAGAVATHIM.E., Ph. Q.

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10. Selective etching is done using?	
a) Diffusion process	c) Metallization process
b) Photolithography process	d) Masking process
agree of to a engolubourant ma	
11. Usually, the substrate of IC is made up of-	
a) Germanium	Silicon SiO2
b) metal	d) Aluminum.
12.71	9) Passive elements
12. The process of forming an IC on a single si	
a) Single Process IC	c) Epitaxial IC
b) Monolithic IC	A) all the above
13. The process of forming an IC on a single sil	lican chin is known as
(a) Independent of the substrate	c) Equal to that of the substrate
b) Dependent on the substrate	d) Zero
bependent on the substrate	d) Connector layer
14. Silicon dioxide helps the penetration of imp	purities.
a) True	o) Partially
b) False	d) All the above
	(a) birst substrate layer
15. Silicon dioxide helps the penetration of imp	purities.
a) Different isolation regions	c) Epitaxial region
b) Same isolation regions	d) Photoresist region
dately alice C on	
16. To make p-n junctions reverse biased, with	respect to isolation region the p-type
substrate must also be held at?	
a) Zero	c) Positive potential
b) Unity	d) Negative potential
17. While operating circuit, the isolation will be	e lost if the p-n junction is
a) Reverse biased	c) Short circuited
<b>b)</b> Forward biased	d) Open circuited
No. To	
18. To prevent the connection between two isol	
ions between isolation regions should be?	
a) Zero	c) Higher than that of the substrate
b) Lower than that of the substrate	d) Equal to that of the substrate.
The Item ties continuous of sub-no	one water from contamination
19. Using base diffusion step are formed o	
a) Transistor b) base regions Resistors	c) Resistors d) All of the above
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1	
20 In base diffusion step	impurities are diffused?
a) p-type	c) Both p & n-type
Joy h-type	d) None of the above.
The majetivity of the h	age layer is the isolation region?
	ase layer is the isolation region?  Higher than
a) Equal to	d) Reciprocal
b) Lower than	d) Recipiocal
22. In emitter diffusion ste	p are formed?
a) Transistor	c) Resistors
b) emitters	d) Only a & c
23 Aluminum is a	type impurity in a silicon
ar N-type	c) Inert
b) P-type	d) Metallic
, , ,	
24 prevents th	e formation of the p-n junction when aluminium is used for ohmic
contact?	
a) A large concentration	
b) A large concentration	on of Silicon
c) A large concentrati	on of Polysilicon
Mone of these	
- 1	
25. The interconnections	are made during
a) Emitter diffusion	
b) Photolithography	process
c) Epitaxial growth	
d) Metallization prod	ess
	Dr. S.THILAGAVATHI M.E.,Ph.D.,
	Dr. S. I HILL PRINCIPAL PRINCIPAL
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	COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt.
	Venue



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## DEPARTMENT OF ELECTRONICS AND COMMUNICATIONENGINEERING ACADEMIC YEAR EVEN SEMESTER (2021-2022)

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

27	912618106007	NAGALAKSHMIP	YEAR & BRANCH	Attendance (A)		VAC -MCQ TEST (B)		OVERALL MARK(100)
S.NO	REGISTER NUMBER	NAME		No.of Sessions Attented	Marks (100)	No.of Correct Answer	Marks (100)	(50% of A + 50% of B)
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 <sub>D</sub>	S.THTEAGAN
14	912619106005	MAHESWARI K	III /ECE	10	100	19	76	88 PRIN

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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
32	912618106701	JANANI.R	IV /ECE	10	100	18		72

Course Coordinator

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