



KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI, ERODE – 638060



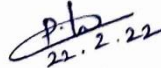
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 22.02.2022

CIRCULAR

The following courses are approved by Curriculum and Development Cell (CDC) for this semester (2021-2022 even). The students may enroll themselves based on their willingness to attend the course. The courses will start from March 2022 onwards.

S.No.	Course Code	Name of the One credit course
1.	18VAC81	ASIC design using Cadence
2.	18VAC69	Real time project development using Image Processing and Machine Learning
3.	20VC015	Modeling and deployment Onto SoC using MATLAB and SIMULINK
4.	20VC024	Biomedical Systems and Wearable Medical Services
5.	18VAC88	System Design using MSP430 microcontroller and Code Composer Studio
6.	18VAC89	Industrial communication standards and measurements
7.	18VAC90	Long range technology for IoT application using LORA WAN
8.	20VC025	Long range technology for IoT application using LORA WAN
9.	18VAC91	QCA design for digital Electronics


22.2.22
Faculty Incharge


22/2/2022
HOD / ECE

 KONGU ENGINEERING COLLEGE (Autonomous) PERUNDURAI - 638060 INTERNAL QUALITY ASSURANCE CELL Estd : 1984	APPROVAL FOR VALUE ADDED COURSE (ONE CREDIT)		 CERT No. 99-188-10788 ISO 9001 : 2015
	Academic Year: 21-22 ODD/EVEN Semester DEPARTMENT OF ECE		

Date:19.03.2022

1.	Academic Year	:	21-22	Semester : ODD / EVEN			
2.	Course Title	:	QCA Design For Digital Electronics	Credit(s): One / Two			
3.	Type of Course	:	Already Offered Course / Updated Course / New Course				
	• If "Already offered course",	:	Course Code:	Version: I			
4.	Course Coordinator(s)	:	1.Mr.A.Chandrasekaran 2.Ms.K.Hemalatha				
5.	Course offered by	:	Internal faculty / External-experts				
6.	Name and designation of external resource persons	:					
7.	Details about external organization	:					
8.	Course fee for external experts		Max. number of students/Batch		Course fee / student		
			50		Rs.300		
9.	No. of days	Period		No. of hours		Venue/ Meet ID	
		From	To	Lecture	Practical		Total
		19.03.22	07.05.22	18	12	30	Computer Center/ECE
10.	Pre-requisites for offering the course	:	Digital Electronics				
11.	Course offered to	:	Programme	Branch	Year/Semester		
		:	B.E	ECE	III/VI		
12.	Course Main	:	Day 1	Introduction to Nano technology and QCA			

12
Shree

Shree

QCA DESIGN FOR DIGITAL ELECTRONICS

Programme & Branch	B.E & ECE	Sem.	Category	L	T	P	Credit
Prerequisites	Digital Electronics		VAC	1	0	1	1

Preamble: To provide the skills to design digital logic circuits in nanotechnology tool Quantum Dot Cellular Automata.

Unit - I QCA- Introduction: 9

Introduction to nanotechnology-Quantum dot cellular automata (QCA),-QCA designer 2.0.3 tool introduction - overview- QCA clocking- QCA crossover

Unit - II Design of QCA circuits: 9

Majority gate – Inverter –Basic gates design using QCA- J- Map –J map overview- combinational circuits: half and full adder, Half and full subtractor- sequential circuits

List of Exercises / Experiments:

1. Design of majority gate using QCA
2. Design of conventional inverter using QCA
3. Design of logic gates AND/OR/NAND/NOR gate
4. Design of half adder and full adder/ half subtractor and full subtractor
5. Design of multiplexer and demultiplexer
6. Design of encoder and decoder
7. Design of binary adder
8. Design of SR ,JK flip flop
9. Design of D and T flip flop
10. Design of SISO register

Lecture: 18, Practical:12 , Total:30

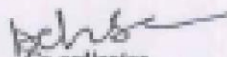
REFERENCES:

1. Sridharan, Krishnamurthy, and VikramkumarPudl. Design of arithmetic circuits in quantum dot cellular automata nanotechnology. Vol. 599. Springer International Publishing, 2015.
2. Morris Mano M., "Digital Design", 6th Edition, Pearson Education Pvt. Ltd., New Delhi, 2018.

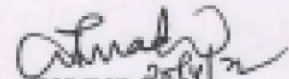
KONGU ENGINEERING COLLEGE, PERUNDURAI – 638060
 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 2021-2022 EVEN SEMESTER
 One credit course on "QCA Design for Digital Electronics"
 Course schedule – (Offline)

S.No	Day	Topics	Faculty
1	Day 1	Introduction to Nano technology and QCA	Dr.KSK
2	Day 2	QCA designer 2.0.3 tool introduction	Dr.KSK
3	Day 3	QCA clocking	Dr.KSK
4	Day 4	QCA crossover	Dr.KSK
5	Day 5	Design and simulation of 5 and 3 input majority gate using QCA	Dr.KSK
6	Day 6	Design and simulation of conventional inverter using QCA	Mr.AC
7	Day 7	Design and simulation of AND and OR gates in QCA	Mr.AC
8	Day 8	Design and simulation of NAND and NOR gates in QCA	Mr.AC
9	Day 9	Design and simulation of half adder and full adder	Mr.AC
10	Day 10	Design and simulation of half subtractor and full adder	Mr.AC
11	Day 11	Design and simulation of multiplexer and demultiplexer	Ms.KH
12	Day 12	Design and simulation of encoder and decoder	Ms.KH
13	Day 13	Design and simulation of binary adder	Ms.KH
14	Day 14	Design and simulation of SR, JK, D and T flip flop	Ms.KH
15	Day 15	Design and simulation of SISO register	Ms.KH

Dr.KSK- Dr.K.Senthil Kumar, Associate Professor /ECE
 Mr.AC- Mr.A.Chandrasekaran, Assistant Professor (Sr.G)/ECE
 Ms.K.Hemalatha, Assistant Professor (Sr.G)/ECE


 Co-ordinator

A. Chandrasekaran


 HOD/ECE

Consolidated Mark sheet

S.No.	Roll No.	Name of the Student	Marks (MCQs out of 40)	Marks (Laboratory Assessment out of 60)	Total Marks (out of 100)
1.	19ECL230	PON GOWTHAM K	39	56	95
2.	19ECL231	PRAVEEN KUMAR P	39	56	95
3.	19ECL232	RAJALINGAM J	38	56	94
4.	19ECL233	SANJEEV A	39	56	95
5.	19ECL236	SURESHKUMAR M	39	58	97
6.	19ECR027	DHARANI K S	36	54	90
7.	19ECR085	KISHORE S K	39	54	93
8.	19ECR121	NITHISH V S	38	58	96
9.	19ECR122	NITHISH KUMAR S	39	58	97
10.	19ECR123	PAVITHRA R	38	60	98
11.	19ECR125	POOVENTHAN D	37	57	94
12.	19ECR127	PRAGADISH SELVAN R	39	58	97
13.	19ECR128	PRANESH S	39	56	95
14.	19ECR129	PRATHIKSHA T	37	56	93
15.	19ECR131	PRIYA DHARSHINI K	38	58	96
16.	19ECR136	RAJESH R	38	58	96
17.	19ECR140	RAJITH R	38	54	92
18.	19ECR141	RAVI KUMAR P	38	58	96
19.	19ECR143	RITHIKHAA D	38	54	92
20.	19ECR146	ROHIT KUMAR P	39	58	97
21.	19ECR147	RUBESH K	38	58	96
22.	19ECR149	SABAREESWARAN S	39	58	97
23.	19ECR150	SABARESHWARAN R	39	58	97
24.	19ECR152	SANDEEP P K	37	58	95
25.	19ECR153	SANDHIYA M	38	58	96
26.	19ECR154	SANDIYA S	38	58	96
27.	19ECR156	SANJANA A C	37	56	93
28.	19ECR158	SANJAY E	37	54	91
29.	19ECR159	SANJAY R	38	58	96
30.	19ECR161	SANJITH KUMAR S	38	58	96
31.	19ECR163	SANTHOSH S	39	58	97
32.	19ECR164	SARAN G	39	58	97
33.	19ECR167	SARAVANAN S	39	57	96
34.	19ECR168	SARVESHAN K	38	56	94

Pch
 22/10/20
 M. H. H. H.
 22/10/20

24/12/20

KONGU ENGINEERING COLLEGE, PERUNDURAI, ERODE – 638 060
 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 One Credit Course on "QCA Design for Digital Electronics"

ATTENDANCE SHEET

S. No	Roll no	Name	Attendance Percentage
1.	19ECL230	PON GOWTHAM K	93.33
2.	19ECL231	PRAVEEN KUMAR P	100
3.	19ECL232	RAJALINGAM J	93.33
4.	19ECL233	SANJEEV A	93.33
5.	19ECL236	SURESHKUMAR M	100
6.	19ECR027	DHARANI K S	100
7.	19ECR085	KISHORE S K	100
8.	19ECR121	NITHISH V S	100
9.	19ECR122	NITHISH KUMAR S	100
10.	19ECR123	PAVITHRA R	100
11.	19ECR125	PDOVENTHAN D	93.33
12.	19ECR127	PRAGADISH SELVAN R	100
13.	19ECR128	PRANESH S	93.33
14.	19ECR129	PRATHIKSHA T	100
15.	19ECR131	PRIYA DHARSHINI K	100
16.	19ECR136	RAJESH R	93.33
17.	19ECR140	RANJITH R	93.33
18.	19ECR141	RAVI KUMAR P	93.33
19.	19ECR143	RITHIKHAA D	100
20.	19ECR146	ROHIT KUMAR P	93.33
21.	19ECR147	RUBESH K	100
22.	19ECR149	SABARISHWARAN S	100
23.	19ECR150	SABARISHWARAN R	100
24.	19ECR152	SANDEEP P K	93.33
25.	19ECR153	SANDHIYA M	100
26.	19ECR154	SANDIYA S	100

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 20/11/20
 W. Muthu

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 24/11/20