



KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI, ERODE – 638060



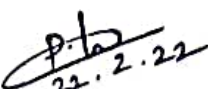
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

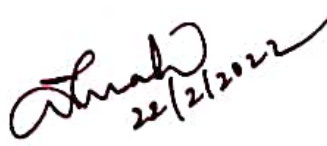
Date: 22.02.2022

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

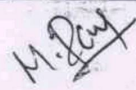
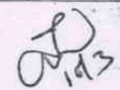

22/2/2022
HOD / ECE

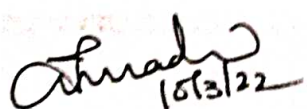
 Estd : 1984	KONGU ENGINEERING COLLEGE (Autonomous) PERUNDURAI – 638060 INTERNAL QUALITY ASSURANCE CELL		 CERT No.99-100-20788 ISO 9001 : 2015
	Approval for Value Added Course (One / Two Credits)		

Academic Year: 2021 – 2022. **ODD/EVEN Semester****DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

Date: 10.03.2022

1.	Academic Year	:	2021 – 2022	Semester :	ODD / EVEN		
2.	Course Title	:	Real Time Project Development using Image Processing and Machine Learning	Credit(s):	One / Two		
3.	Type of Course	:	Already Offered Course / Updated Course / New Course				
	• If “Already offered course”,	:	Course Code: 18VAC69	Version:	-		
4.	Course Coordinator(s)	:	1. Dr. P.Nirmala devi 2. M.Pavithra				
5.	Course offered by	:	Internal faculty & External experts				
6.	Name and designation of external resource persons	:	1. Mr. Rajasekaran . V, Application Engineer, Innovative Invader Technologies., Coimbatore				
7.	Details about external organization	:	• Mr.Rajasekaran V, Application Engineer, Innovative Invader Technologies., Coimbatore • The equipments procured under AICTE-MODROB scheme from M/s. Innovative Invader Technologies., This course syllabus is based on hands-on training for developing applications using the above equipments.				
8.	Course fee for external experts		Max. number of students/Batch		Course fee / student		
	Rs.10,000/-		50		Rs.300/-		
9.	No. of days	Period		No. of hours			Venue
		From	To	Lecture	Practical	Total	
	9	19.03.2022	30.04.2022	18	12	30	
10.	Pre-requisites for offering the course	:	Digital Signal Processing				
11.	Course offered to	:	Programme	Branch	Year/Semester		
		:	BE	ECE	III / VI		
12.	Course Main Contents	:	Day 1	Graphical programming environment – Introduction to LabVIEW – Advantages of using LabVIEW in Virtual instrumentation			
		:	Day 2				

		Day 3	Graphical dataflow programming – menus and palette		
		Day 4			
		Day 5	Front panel controls and indicators – Block diagram functions – Data types in LabVIEW		
		Day 6	Developing simple VI's – Sub-VI creation – formula nodes – Debugging techniques in LabVIEW.		
		Day 7	Introduction to Image Processing – Edge detection – Pattern Matching – Colour detection		
		Day 8			
		Day 9	Dimension measurements & particle counting		
		Day 10	Implementation of Machine vision techniques – Simple applications		
		Day 11 (8 Hours)	Vision Module – Acquisition of images using Camera – Preparing the images for the analysis		
			Hands-on experiments		
			1. Coin Caliper		
			2. Coin Counter		
3. Product Label inspector					
	4. DMM test Stand				
	5. Gauging station				
	6. Motion detector				
Day 12	Test				
Assignment / Project / Case Study/Others: Nil					
13.	Course Outcomes	:	After completing the course the student will be able to:		
			• Make use of Vision module for capturing real time images • Experiment with image processing algorithms for real time applications • Demonstrate simple real time applications in image processing and machine learning applications using LabVIEW		
14.	Course Assessment (Min. 2)	:	S. No.	Type	Max. Marks
			1	Objective Questions	50
			2	Laboratory Assessment	50
			Total		100
15.	Verified that the content of this course is not offered to students partially/fully in regular curriculum of respective programme of the student. Certify that the course content, credits and grade are approved in the BOS meeting or approved by internal BOS members and will be ratified in the next BOS meeting				 (Signature of the HoD after verification)
16.	Any other details	:	--		

The above proposal may kindly be approved.

1. P. N. Kumar

2. H. J. ...
Course co-ordinator(s)

Encl:


HOB

Chief Coordinator/Academic

1. Copy of the syllabus of the course
2. Financial proposal from the external organization (if any)

18VAC69 – REAL TIME PROJECT DEVELOPMENT USING IMAGE PROCESSING AND MACHINE LEARNING

L	T	P	Credit
1	0	1	1

Preamble	To impart a Hands-on experience for the students to develop projects using Labview in image processing and machine learning applications	
Unit - I	Introduction to LabVIEW:	9
Graphical programming environment – Introduction to LabVIEW – Advantages of using LabVIEW in Virtual instrumentation – Graphical dataflow programming – menus and palettes – Front panel controls and indicators – Block diagram functions – Data types in LabVIEW – Developing simple VI's – Sub-VI creation – formula nodes – Debugging techniques in LabVIEW		
Unit - II	Image Processing and Machine Learning using LabVIEW:	9
Introduction to Image Processing – Edge detection – Pattern Matching – Colour detection – Dimension measurements & particle counting – Implementation of Machine vision techniques – Simple applications – Vision Module – Acquisition of images using Camera – Preparing the images for the analysis		

List of Exercises / Experiments:

1.	Coin Caliper
2.	Coin Counter
3.	Product Label Inspector
4.	DMM test Stand
5.	Gauging station
6.	Motion detector

Lecture:18, Practical:12, Total: 30

REFERENCES:

1.	NI My RIO Vision NI Guide
2.	https://www.ni.com/pdf/manuals/320999e.pdf

COURSE OUTCOMES:

On completion of the course, the students will be able to

	BT Mapped (Highest Level)
CO1 develop projects for simple applications using Labview	Applying (K3)
CO2 make use of Vision module for capturing real time images	Applying (K3)
CO3 demonstrate simple real time applications in image processing and machine learning applications using Labview	Applying (K3), Precision (S3)

Mapping of COs with POs and PSOs

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	1	3						2		3	2
CO2	3	2	1	1	3						2		3	2
CO3	3	2	1	1	3						3		3	2

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN

Test / Bloom's Category	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
Objective Questions (50 marks)	20	50	30				100
Laboratory Assessment (50 marks)		30	70				100

P. N. G. ...

Signature of the Chairman
Board of Studies - ECE

on
“Real Time Project Development using Image Processing and Machine Learning”
from

04.05.2022 to 21.05.2021 through offline mode

Proposed Schedule

S.No.	Date	Topics to be covered	Session	Hour	Name of the Faculty	Duration
1.	04.05.22	Introduction to LabVIEW	Theory	1	M.Pavithra	4.30 to 5.30 pm
			Lab	2	M.Pavithra	5.30 to 6.30 pm
2.	05.05.22	Installation of LabVIEW and Vision Assistant	Theory	3	M.Pavithra	4.30 to 5.30 pm
3.			Lab	4	M.Pavithra	5.30 to 6.30 pm
4.	06.05.22	Graphical programming environment	Lab	5 6	M.Pavithra	4.30 to 6.30 pm
5.	07.05.22	Introduction to Machine Vision	Theory	7,8	V.Rajasekaran (Innovative Invader Technologies)	09:00am to 11:00am
			Lab	9,10	V.Rajasekaran (Innovative Invader Technologies)	11.00 to 1.00 pm
6.	07.05.22	Image acquisition & preparing images for the machine vision	Lab	10,11	V.Rajasekaran (Innovative Invader Technologies)	
7.	07.05.22	Object counting using edge detection	Theory	12	V.Rajasekaran (Innovative Invader Technologies)	2.00 pm to 3.00 pm
			Lab	13	V.Rajasekaran (Innovative Invader Technologies)	3.00 pm to 4.00 pm
8.	17.05.22	Front panel controls and indicators – Block diagram functions – Data types in LabVIEW	Lab	14	Dr. P. Nirmala devi	4.30 to 5.30 pm
9.	17.05.22	Developing simple VI's – Sub-VI creation – formula nodes – Debugging techniques in LabVIEW.	Theory	15	Dr. P. Nirmala devi	
			Lab	16	Dr. P. Nirmala devi	5.30 to 6.30 pm
10.	18.05.22	Introduction to Image Processing – Edge detection – Pattern Matching – Colour detection	Lab	17	Dr. P. Nirmala devi	4.30 to 5.30 pm
11.	18.05.22	Dimension measurements & particle counting –	Theory	18	Dr. P. Nirmala devi	5.30 to 6.30 pm
			Lab	19		
12.	19.05.22	Implementation of Machine vision techniques – Simple applications	Lab	20	M. Pavithra	4.30 to 5.30 pm
13.	19.05.22	Vision Module – Acquisition of images using Camera – Preparing the images for the analysis Hands-on experiments 1. Coin Caliper Coin Counter	Theory	21	M.Pavithra	5.30 to 6.30 pm
			Lab	22	M.Pavithra	07.00PM to 08.00PM

14.	20.05.22	Hands-on experiments 1. Product Label inspector 2. DMM test Stand 3. Gauging station Motion detector	Theory	23	M.Pavithra	06.00PM to 07.00PM
			Lab	24	M.Pavithra	07.00PM to 08.00PM
15.	20.05.22	Test	Lab	25	M.Pavithra	06.00PM to 08.00PM
				26	M.Pavithra	
16.	21.04.2021		Theory	27	V.Rajasekaran	06.00PM to 07.00PM
17.	21.05.2021	Mini project	Lab	28	(Innovative Invader Technologies	09.00AM to 12.00PM
				29	V.Rajasekaran	
				30	(Innovative Invader Technologies	

Coordinator

Dr.P.Nirmaladevi
M.Pavithra

M. Pavithra

Dr. P. Nirmaladevi
30/4/22



KONGU ENGINEERING COLLEGE
(Autonomous)
PERUNDURAI – 638060
INTERNAL QUALITY ASSURANCE CELL
Electronics and Communication
Engineering



CERT No.: 99-100-20728
ISO 9001:2015

CONSOLIDATED ATTENDANCE

S.NO	NAME	ROLL NUMBER	SECTION	CONDUCTED HOURS	NO:OF HOURS PRESENT	NO:OF HOURS ABSENT	ATTENDANCE PERCENTAGE
1.	Gowtham N	19ECR043	A	30	0	30	0.00
2.	Balakumaran E	19ECR019	A	30	30	0	100.00
3.	Adithya B	19ECR006	A	30	27	3	90.00
4.	Aswin K U	19ECR017	A	30	28	2	93.33
5.	Dhamodharan S	19ECR026	A	30	30	0	100.00
6.	Dharunash AS	19ECR032	A	30	30	0	100.00
7.	Dharanidharan K	19ECR030	A	30	30	0	100.00
8.	Gokul S	19ECR039	A	30	29	1	96.67
9.	Abirami N V	19ECR005	A	30	30	0	100.00
10.	Akshaya K	19ECR007	A	30	30	0	100.00
11.	Jayaprasath M	19ECR065	B	30	26	4	86.67
12.	S.Hema	19ECR061	B	30	19	11	80.00
13.	Karthick.V	19ECR073	B	30	28	2	93.33
14.	Harish M	19ECR056	B	30	30	0	100.00
15.	Manoj Kumar S	19ECR100	B	30	30	0	100.00
16.	Jeeva T	19ECR067	B	30	30	0	100.00
17.	S Khrushchev	19ECR081	B	30	26	4	86.67
18.	Kawin.P	19ECR078	B	30	27	3	90.00
19.	Johnson.S	19ECR071	B	30	28	2	93.33
20.	Myvizhli.P	19ECR110	B	30	30	0	100.00
21.	Lokesh V	19ECR094	B	30	30	0	100.00

[Signature]
21/06/22

M. Paul
21/06/22

22.	Mounesh K	19ECR109	B	30	30	0	100.00
23.	Inianyuswant S	19ECR062	B	30	28	2	93.33
24.	Mithunkumar R T	19ECR103	B	30	28	2	93.33
25.	Kasiram P	19ECR076	B	30	30	0	100.00
26.	Kishore M	19ECR084	B	30	28	2	93.33
27.	Selciyadevi S	19ECR170	D	30	28	2	93.33
28.	Srihariharan I	19ECR185	D	30	28	2	93.33
29.	Subikshna V	19ECR196	D	30	30	0	100.00
30.	Sheeladevi M	19ECR175	D	30	30	0	100.00
31.	Silviya X	19ECR177	D	30	30	0	100.00
32.	Sowmiya P	19ECR181	D	30	30	0	100.00

Arundh
24/6/22

PamD
21/6/22

**KONGU ENGINEERING COLLEGE**

(Autonomous)

PERUNDURAI - 638060

INTERNAL QUALITY ASSURANCE CELL

**Electronics and Communication
Engineering**

 CERT No.: 99-100-20788
ISO 9001 : 2015
ONE CREDIT COURSE
Real Time Project Development using Image Processing and Machine Learning
CONSOLIDATED MARKS

S.NO	NAME	ROLL NUMBER	SECTION	MARKS(out of 50)	MARKS(out of 100)
1.	GOWTHAM N	19ECR043	A	ABSENT	ABSENT
2.	BALAKUMARAN E	19ECR019	A	48	96
3.	ADITHYA B	19ECR006	A	41	82
4.	ASWIN K U	19ECR017	A	25	50
5.	DHAMODHARAN S	19ECR026	A	45	90
6.	Dharunash AS	19ECR032	A	43	86
7.	Dharanidharan K	19ECR030	A	43	86
8.	Gokul S	19ECR039	A	44	88
9.	Abirami N V	19ECR005	A	32	64
10.	Akshaya K	19ECR007	A	47	94
11.	JAYAPRASATH M	19ECR068	B	48	96
12.	S.HEMA	19ECR061	B	25	50
13.	KARTHICK.V	19ECR073	B	41	82
14.	HARISH M	19ECR056	B	43	86
15.	MANOJ KUMAR S	19ECR100	B	44	88
16.	JEEVA T	19ECR067	B	25	50
17.	S KHRUSHCHEV	19ECR081	B	35	70
18.	KAWIN.P	19ECR078	B	39	78
19.	JOHNSON.S	19ECR071	B	25	50
20.	MYVIZHILI.P	19ECR110	B	43	86
21.	LOKESH V	19ECR094	B	45	90
22.	Mounesh K	19ECR109	B	43	86
23.	Inianyswant S	19ECR062	B	42	84
24.	Mithunkumar R T	19ECR103	B	35	70
25.	Kasiram P	19ECR076	B	50	100
26.	Kishore M	19ECR084	B	47	94
27.	SELCIYADEVI S	19ECR170	D	44	88
28.	Srihariharan I	19ECR185	D	47	94
29.	SUBIKSHNA V	19ECR196	D	25	50
30.	Sheeladevi M	19ECR175	D	42	84
31.	Silviya X	19ECR177	D	46	92
32.	Sowmiya P	19ECR181	D	35	70

Handwritten signature
24/6/22

Handwritten signature
21/6/22

Handwritten signature
21/6/22