



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



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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KAIKKURUCHI, PUDUKOTTAI – 622 303

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2022-2023 / 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

VAC Title:	REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS				
Resource Person:	T.Parthiban, Assistant professor, EEE department, SBECW.				
Date of conduct from :	30.01.2023	To:	03.02.2023	Duration:	30 Hours
Organized Department :	ELECTRICAL AND ELECTRONICS ENGINEERING				
Participant Year:	2,3, 4	Semester:	EVEN	No. of Students Registered :	18
Venue:	Tutorial Hall:42 ,SBECW				

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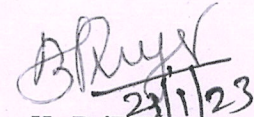
ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

DEPARTMENT CIRCULAR

Date: 23/01/2023

This is to inform that certificate course offered by the Department of Electrical and Electronics Engineering will be conducted for all Second, Third & Final year on “**REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS**” from 30.01.2023 to 03.02.2023. Certificates will be issued to the eligible participants at the end of the Course. The resource person details are shown in the following table.

Sl.No.	Name of the Course	Course Coordinator
1.	Real Time Application of Arduino Uno Boards	Mr. T. PARTHIBAN Assistant professor, EEE department, SBECW


23/1/23
HoD/EEE

HOD EEE

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Cc:

- Principal's Office
- IQAC Coordinator
- Class In charges - II, III & IV-year of EEE
- II, III & IV-year EEE Students
- Notice Board


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ACADEMIC YEAR 2022-2023/ EVEN SEMESTER

CERTIFICATE COURSE

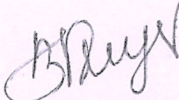
REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

SCHEDULE

SI .NO	TOPICS	DURATION (in hours)	DATE
1.	Course Introduction	3	30.01.2023
2.	Understanding Arduino Syntax	3	30.01.2023
3.	Serial Port Communication	3	31.01.2023
4.	Pulse Width Modulation using analogWrite ()	3	31.01.2023
5.	Comparison Operators and Condition	3	01.02.2023
6.	Using a Keyboard for Data Collection	3	01.02.2023
7.	State Change Detection and the Modulo Operator	3	02.02.2023
8.	De-bouncing a Button	3	02.02.2023
9.	Analog I/O and Serial Communications	3	03.02.2023
10.	Smoothing Data	3	03.02.2023
TOTAL HOURS		30 HOURS	


COURSE COORDINATOR


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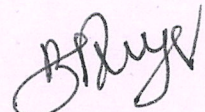
STUDENT NAME LIST FOR CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

S.NO	NAME	REG.NO	YEAR & SEMESTER
1.	GOKULAPRAVEENA A	912621105001	II&IV
2.	SUMITHRA S	912621105004	II&IV
3.	KAYALVIZHI K	912620105001	III &VI
4.	RAMADEVI S	912620105002	III &VI
5.	SRINANTHANA S	912620105003	III &VI
6.	KAVIYA R	912620105302	III &VI
7.	KOPPERUNDEVI S	912620105303	III &VI
8.	SRIBHARATHI S	912620105305	III &VI
9.	AASHIKA R	912619105001	IV &VIII
10.	ABINAYA S	912619105002	IV &VIII
11.	ABITHA P	912619105003	IV &VIII
12.	ARTHY N	912619105004	IV &VIII
13.	DEEPIKA R	912619105005	IV &VIII
14.	NISHA S	912619105007	IV &VIII
15.	PAVITHRA M	912619105008	IV &VIII
16.	PRAGADEESHWARI A	912619105009	IV &VIII
17.	SIVARANJANI S	912619105010	IV &VIII
18.	RAGAVI R	912619105301	IV &VIII


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ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

ATTENDANCE SHEET FOR CERTIFICATE COURSE REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

S.NO	REG. NO	NAME	YEAR/ SEM	30.01.2023		31.01.2023		01.02.2023		02.02.2023		03.02.2023		NO. OF CLASS 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	912621105001	GOKULAPRAVEENA A	II&IV	/	/	/	/	/	/	/	/	/	/	10	A. Praveena
2	912621105004	SUMITHRA S	II&IV	/	/	/	/	/	/	/	/	/	/	10	S Sumy.
3	912620105001	KAYALVIZHI K	III & VI	/	/	/	a	/	/	/	/	/	/	09	K. Kayalvizhi
4	912620105002	RAMADEVI S	III & VI	/	/	/	/	/	/	/	/	/	/	10	R. Ramadevi
5	912620105003	SRINANTHANA S	III & VI	/	/	/	/	/	/	/	/	/	/	10	S. Srinantha
6	912620105302	KAVIYA R	III & VI	/	/	/	/	/	/	/	/	/	/	10	R. Kaviya
7	912620105303	KOPPERUNDEVI S	III & VI	/	/	/	/	/	/	/	/	/	/	10	S. Kopperunde
8	912620105305	SRIBHARATHI S	III & VI	/	/	/	/	/	/	/	/	/	/	10	S. Sriharathi

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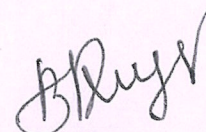
9	912619105001	AASHIKA R	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	R. Aashika
10	912619105002	ABINAYA S	IV & VIII	/	a	/	/	/	/	/	/	/	/	/	09	S. Abinaya
11	912619105003	ABITHA P	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	P. Abitha
12	912619105004	ARTHY N	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	D. Arthy
13	912619105005	DEEPIKA R	IV & VIII	/	/	a	a	/	/	/	/	/	/	/	08	R. Deepi
14	912619105007	NISHA S	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	S. Nisha
15	912619105008	PAVITHRA M	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	M. Pavithra
16	912619105009	PRAGADEESHWARI A	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	A. Pragadeeshwari
17	912619105010	SIVARANJANI S	IV & VIII	/	/	/	/	/	a	/	/	/	/	/	09	S. Sivaranjani
18	912619105301	RAGAVI R	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	10	R. Ragavi



COURSE COORDINATOR



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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Report on Value Added Course

Title: REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

Resource Person: T.Parthiban,
Assistant professor,
EEE department, SBECW.

Date of conduct from : 30.01.2023 To: 03.02.2023 Duration: 30 Hours

Organized Department : ELECTRICAL AND ELECTRONICS ENGINEERING

Participant Year: 2/ 3 /4 Semester: EVEN No. of Students Registered : 18

Venue: Tutorial Hall:42 ,SBECW

Outcome of Value Added Course (VAC)

- At the end of the Course, Students can able to
- Explain about the Hardware Overview - Download and Install the Arduino IDE Arduino IDE and its Syntax.
 - Describe about using Variables Blink an LED - digitalRead () and Serial Port Communication - analogRead () and Serial Port Communications Reading Analog Pins.
 - Obtain insight about converting the Input to a Voltage - Fade an LED with Pulse Width Modulation using analog Write ().
 - Comprehend about If-Else Statement - Comparison Operators and Condition - For Loop Iteration - How to Use Arrays Switch Case Statement.
 - Demonstrate about blink an LED without using the delay () Function.
 - Illustrate about analog I/O and Serial Communications - Analog Input – Calibration - Smoothing Data.

No. of students successfully completed the VAC course is 18 students based on the following assessment process.

Assessment Process

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


Course Coordinator


HoD/ EEE

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Principal

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DEPARTMENT OF EEE

CERTIFICATE OF PARTICIPATION

This is to certify that Ms. GOKULAPRAVEENA A (912621105001),II year has successfully completed the Certificate Course on "REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS" held at the college from 30th January 2023 to 3rd February 2023 (5 Days).

COURSE COORDINATOR

HOD/EEE

PRINCIPAL

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

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DEPARTMENT OF EEE

CERTIFICATE OF PARTICIPATION

This is to certify that Ms. KAYALVIZHI K (912620105001), III year has successfully completed the Certificate Course on "REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS" held at the college from 30th January 2023 to 3rd February 2023 (5 Days).

COURSE COORDINATOR

HOD/EEE

PRINCIPAL

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

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DEPARTMENT OF EEE


CERTIFICATE OF PARTICIPATION

This is to certify that Ms. AASHIKA R (912619105001),IV year has successfully completed the Certificate Course on "REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS" held at the college from 30th January 2023 to 3rd February 2023 (5 Days).


COURSE COORDINATOR


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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

Name of student:

Year/Sem:

AU Reg.No:

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Arduino?
a) Programming language b) Image editing software
c) Open-source electronics platform d) Text editor
2. What language is a typical Arduino code based on?
a) Assembly Code b) Python
c) Java d) C/C++
3. Arduino shields are also called as _____
a) Another Arduinos b) Extra peripherals
c) Add on modules d) Connectivity modules
4. What language is the Arduino IDE built on?
a) Java b) HTML
c) C/C++ d) Python
5. Arduino IDE consists of 2 functions. What are they?
a) Loop() and build() and setup() b) Build() and loop()
c) Setup() and build() d) Setup() and loop()
6. Arduino Codes are referred to as _____ in the Arduino IDE.
a) sketches b) drawings
c) links d) notes
7. What is the default bootloader of the Arduino UNO?
a) AIR-boot b) GAG
c) Optiboot bootloader d) Bare box
8. What does p refer to in ATmega328p?
a) Programmable on chip b) Power-Pico
c) Production d) Pico-Power


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9. What is the use of the Arduino.h header file?
- It enables the programmer to access all of Arduino's core functionality
 - It doesn't have any use and can be omitted at any point of time in the code
 - It gives root access to the microcontroller's file system
 - It allows other people to create libraries for the Arduino code
10. What is the use of the Vin pin present on some Arduino Boards?
- To ground the Arduino Board
 - To power the Arduino Board
 - To provide a 5V output
 - Is used for plugging in 3V supply
11. What is the correct execution process of an Arduino code?
- Editor->Preprocessor->Compiler
 - Preprocessor->Editor->Compiler
 - Compiler->Preprocessor->Editor
 - Editor->Compiler->Preprocessor
12. What is the microcontroller used in Arduino UNO?
- ATmega32114
 - AT91SAM3x8E
 - ATmega2560
 - ATmega328p
13. Which Arduino Board contains an onboard joystick?
- Arduino Nano
 - Arduino UNO
 - Arduino Esplora
 - Arduino Due
14. What is the function of the IOREF pin on the Arduino UNO?
- To take input voltage and set it as a reference for all GPIO operations
 - To provide a constant 12V DC supply
 - To provide ground
 - To provide the voltage corresponding to the standard GPIO working voltage of the board
15. Which software is used to upload the Arduino Sketches to the board?
- avrgcc
 - g++
 - python for windows
 - avrdude
16. What is the operating voltage of Atmega328?
- 1.9V to 5V
 - 1.8V to 5.5V
 - 1.1V to 5V
 - 12V to 9V
17. What is the difference between an IDE and a compiler?
- The compiler executes the code while the IDE gives a graphical environment for writing the code
 - The compiler links the code to the respective files and the IDE takes it from there
 - The compiler and the IDE are the same thing



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d) The IDE executes the code while the compiler gives a graphical environment for writing the code

18. Where does the Arduino IDE search if it needs to find out the Name of a type of Arduino Board?

- a) Arduino.h b) build.txt c) boards.txt d) build.core

19. What is the use of the ESP8266 WiFi Module?

- a) Network Provider b) Switches circuits
c) Evaluates air pressure d) Monitors Motion

20. Why is the Arduino Mega more a viable solution when dealing with complex projects, than the Arduino UNO?

- a) More flash memory on the Arduino Mega b) Higher power rating on the Arduino Mega
c) Higher SRAM on the Arduino Mega d) More number of GPIO pins on the Arduino Mega

21. The Atmega168 is an _____ bit chip.

- a) 32 b) 64 c) 8 d) 16

22. Why does every compilation of a source code in Arduino check for previous compilations?

- a) To copy the previously generated “.o” files
b) To relocate the previously generated “.o” files
c) To delete the previously generated “.o” files
d) To use the previously generated “.o” files

23. What type of signal does the analogWrite() function output?

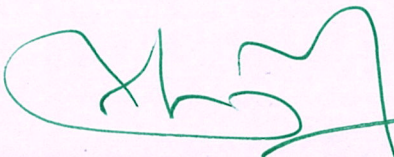
- a) Pulse Code Modulated Signal b) Frequency Modulated Signal
c) Pulse Width Modulated Signal d) Pulse Amplitude Modulated Signal

24. What is the use of the SD.h Library in Arduino?

- a) To communicate with the computer b) To communicate with the internet
c) To communicate with the SD Card Module d) To communicate with another microcontroller

25. Which chipset is the LCD library for Arduino based on?

- a) Hitachi HDD4780 b) Hitachi HD46780
c) Hitachi HD45780 d) Hitachi HD44780


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CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS.

ANSWER KEY FOR MCQ

1	c	2	d	3	c	4	a	5	d
6	a	7	c	8	d	9	a	10	b
11	a	12	d	13	c	14	d	15	a
16	b	17	a	18	c	19	a	20	b
21	c	22	d	23	c	24	c	25	d

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ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

Name of student: A. Gokula Praveena

Year/Sem: II / IV

AU Reg.No: 912621105001

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Arduino?

- a) Programming language b) Image editing software
c) Open-source electronics platform d) Text editor

2. What language is a typical Arduino code based on?

- a) Assembly Code b) Python
c) Java d) C/C++

3. Arduino shields are also called as _____

- a) Another Arduinos b) Extra peripherals
c) Add on modules d) Connectivity modules

4. What language is the Arduino IDE built on?

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6. Arduino Codes are referred to as _____ in the Arduino IDE.

- a) sketches b) drawings
c) links d) notes


7. What is the default bootloader of the Arduino UNO?

- a) AIR-boot b) GAG
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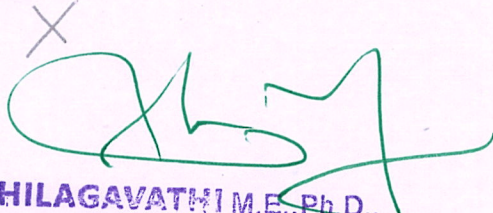
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ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

Name of student: S. Ramadevi

Year/Sem: III / VI

AU Reg.No: 91262010 5002

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Arduino?
a) Programming language b) Image editing software
c) Open-source electronics platform d) Text editor

2. What language is a typical Arduino code based on?

- a) Assembly Code b) Python
c) Java d) C/C++

3. Arduino shields are also called as _____

- a) Another Arduinos b) Extra peripherals
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4. What language is the Arduino IDE built on?

- a) Java b) HTML
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5. Arduino IDE consists of 2 functions. What are they?

- a) Loop() and build() and setup() b) Build() and loop()
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6. Arduino Codes are referred to as _____ in the Arduino IDE.

- a) sketches b) drawings
c) links d) notes

7. What is the default bootloader of the Arduino UNO?

- a) AIR-boot b) GAG
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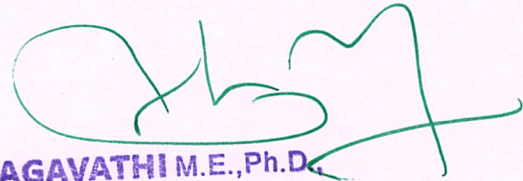
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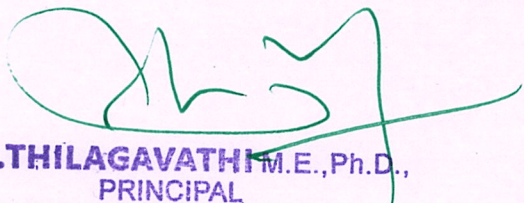
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ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

CERTIFICATE COURSE

REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

Name of student: **AASHIKA R**

Year/Sem: **IV / VIII**

AU Reg.No: **912619105001**

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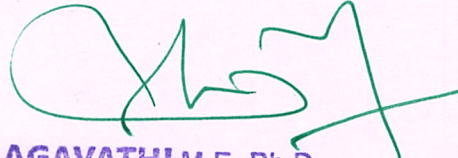
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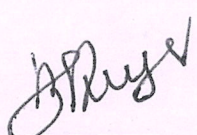
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ACADEMIC YEAR 2022-2023 / EVEN SEMESTER

MARK SHEET FOR CERTIFICATE COURSE
REAL TIME APPLICATIONS OF ARDUINO UNO BOARDS

S.NO	NAME	REG NO.	YEAR/ SEM	ATTENDACE 50% (A)		VAC -MCQ 50%(B)		OVERALL MARK (A+B)
				No of Session Attended	MARKS	No of Correct Answer	MARKS	
1	GOKULAPRAVEENA A	912621105001	II&IV	10	100	22	88	94
2	SUMITHRA S	912621105004	II&IV	10	100	24	96	98
3	KAYALVIZHI K	912620105001	III &VI	9	90	22	88	89
4	RAMADEVI S	912620105002	III &VI	10	100	24	96	98
5	SRINANTHANA S	912620105003	III &VI	10	100	22	88	94
6	KAVIYA R	912620105302	III &VI	10	100	21	84	92
7	KOPPERUNDEVI S	912620105303	III &VI	10	100	23	92	96
8	SRIBHARATHI S	912620105305	III &VI	10	100	24	96	98
9	AASHIKA R	912619105001	IV &VIII	10	100	20	80	90
10	ABINAYA S	912619105002	IV &VIII	9	90	23	92	91
11	ABITHA P	912619105003	IV &VIII	10	100	21	84	92
12	ARTHY N	912619105004	IV &VIII	10	100	24	96	98
13	DEEPIKA R	912619105005	IV &VIII	8	80	24	96	88
14	NISHA S	912619105007	IV &VIII	10	100	21	84	92
15	PAVITHRA M	912619105008	IV &VIII	10	100	20	80	90
16	PRAGADEESHWARI A	912619105009	IV &VIII	10	100	23	92	96
17	SIVARANJANI S	912619105010	IV &VIII	9	90	22	88	89
18	RAGAVI R	912619105301	IV &VIII	10	100	23	92	96


COURSE COORDINATOR


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