

**Hindustan College of Science & Technology, Farah,  
Mathura**  
**Department of Electronics & Communication Engineering**

Date: 01.09.2021

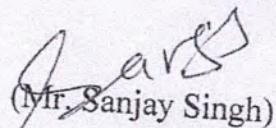
2021/EC/ODD

## Notice

All the students of 2<sup>nd</sup> and 3<sup>rd</sup> year are hereby informed that the department of Electronics and Communication Engineering is going to organize a Value Added Course (VAC) on "**Arduino and its Applications**". The VAC is an excellent opportunity for you to enhance your skills, gain practical knowledge, and supplement your regular academic curriculum.

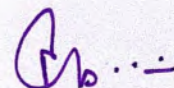
Registration will be open from 06/09/2021 to 14/09/2021. Please ensure that you complete your registration within this timeframe.

For any further inquiries or clarifications regarding registration, kindly reach out to Mr. Sanjay Gupta (Lab Technician, ECE Deptt.).

  
(Mr. Sanjay Singh)

Dy. HOD ECE Deptt.

Head  
Dept. of Electronics & Comm. Engg  
Hindustan College of Science & Technology  
Farah, Mathura



Director  
Hindustan College of  
Science & Technology  
FARAH (MATHURA)



**HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY,  
FARAH - MATHURA**  
**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**



*Value Added Course*  
**VEC2104 - Arduino and its Applications**

*15<sup>th</sup> Sep '2021 – 30<sup>th</sup> Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM*

*Students From Any Branch Can Join the Course*



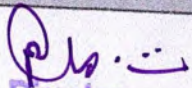
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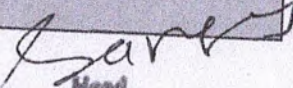
Mr. Ajeet Singh  
Assistant Professor, Electronics & Communication Engineering  
Research Interest: IoT based projects, Microprocessor

Registration Dates  
6<sup>th</sup> Sep 2021 – 14<sup>th</sup> Sep 2021

For Registration: Please contact  
Mr. Sanjay Gupta, Lab Technician, Department of ECE

Prerequisites: Basic knowledge of electronics components with their uses. Also basic understanding of programming.

  
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*Value Added Course*

**VEC2104 - Arduino and its Applications**

**15<sup>th</sup> Sep '2021 – 30<sup>th</sup> Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM**

**Course Objectives**

The main objective of this value added course are as follows:

1. This course provides a comprehensive understanding of Arduino, a popular open-source electronics platform.
2. The course aims to equip students with the necessary knowledge and skills to effectively work with Arduino boards and microcontrollers.
3. Participants will learn the fundamental concepts of programming and interfacing with Arduino, including the use of sensors, actuators, and various electronic components. Through hands-on projects and practical exercises, students will gain experience in designing, building, and programming Arduino-based systems and prototypes.
4. By the end of the course, participants will be able to apply their newfound skills to create innovative projects and automation solutions, fostering creativity and problem-solving abilities in the field of electronics and embedded systems.

**Course Syllabus**

Units	Details	Course Out comes
1	<b>Introduction To Embedded System:</b> Basics of embedded system, components of embedded system, Microcontroller vs. Microprocessor, common features of microcontroller, different types of microcontrollers, advantages and applications of embedded systems.	CO1
2	<b>Getting Started With Arduino:</b> Introduction to Arduino, ARDUINO History and Family, pin configuration and architecture, concept of digital and analog ports, familiarizing with Arduino Interfacing Board, Setting up the Arduino IDE, programming in Embedded-C.	CO2
3	<b>Basic Sensors And Actuators:</b> Introduction to sensors and actuators, types of sensors and their use, how to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO Board, reading various sensor data on serial monitor and LCD Display, functioning of actuator, how to work on Educational & engineering Level Actuator.	CO3
4	<b>Controlling Devices Using Arduino:</b> What is relay, types of relay, how to connect relays to ARDUINO Board, controlling Electrical appliances with electromagnetic relays, working of a matrix keypad, Interfacing a RF Module.	CO4
5	<b>Making It A Reality (Arduino Projects):</b> Home automation using RFID, solar Street Light system, car parking system, water level management system, automatic Irrigation System.	CO5

**Prerequisites:** Basic knowledge of electronics components with their uses. Also basic understanding of programming.

*[Signature]*  
 Director

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*[Signature]*  
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*Value Added Course*  
**VEC2104 - Arduino and its Applications**  
**15<sup>th</sup> Sep '2021 – 30<sup>th</sup> Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM**

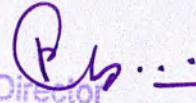
**Course Outcomes**

- CO1** Develop a comprehensive understanding of embedded systems, microprocessors and microcontrollers.
- CO2** Understanding of Arduino and acquire programming skills in Embedded-C for Arduino development.
- CO3** Acquire skills in working with sensors and actuators with hands-on experience in connecting and interfacing sensors and actuators with Arduino boards.
- CO4** Demonstrate the ability to control devices and appliances using Arduino boards.
- CO5** Apply the knowledge gained to design and implement various Arduino-based projects.

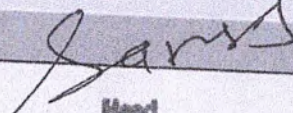
**CO-PO Mappings**

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2		2									2	3	3
CO2	2	3										2		2
CO3	2											2	3	
CO4	2	3	2									2	3	3
CO5	2		2									2		2
Average	2	3	2									2	3	2.5

**Evaluation Criteria: Class attendance, Group project and its presentation, Quiz and Viva.**

  
Director

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA  
 DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



*Value Added Course*  
**VEC2104 - Arduino and its Applications**  
 15<sup>th</sup> Sep '2021 – 30<sup>th</sup> Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM

**Program Schedule**

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	15-09-2021	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Ajeet Singh
2	22-09-2021	3:10 PM – 4:50 PM	2	Introduction To Embedded System: Basics of embedded system, Components of embedded system.	Mr. Ajeet Singh
3	29-09-2021	3:10 PM – 4:50 PM	2	Microcontroller vs. Microprocessor, Common features of Microcontroller.	Mr. Ajeet Singh
4	06-10-2021	3:10 PM – 4:50 PM	2	Different types of microcontrollers, Advantages and applications of embedded systems,.	Mr. Ajeet Singh
5	13-10-2021	3:10 PM – 4:50 PM	2	Getting Started With Arduino: Introduction to Arduino, ARDUINO history and family.	Mr. Ajeet Singh
6	27-10-2021	3:10 PM – 4:50 PM	2	Pin configuration and architecture	Mr. Ajeet Singh
7	10-11-2021	3:10 PM – 4:50 PM	2	Concept of digital and analog ports.	Mr. Ajeet Singh
8	17-11-2021	3:10 PM – 4:50 PM	2	Familiarizing with Arduino Interfacing Board, Setting up the Arduino IDE	Mr. Ajeet Singh
9	24-11-2021	3:10 PM – 4:50 PM	2	Programming in Embedded-C	Mr. Ajeet Singh
10	01-12-2021	3:10 PM – 4:50 PM	2	Basic Sensors And Actuators: Introduction to sensors and actuators, Types of sensors and their use.	Mr. Ajeet Singh
11	08-12-2021	3:10 PM – 4:50 PM	2	How to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO board	Mr. Ajeet Singh
12	15-12-2021	3:10 PM – 4:50 PM	2	Reading various sensor data on serial monitor and LCD Display, Functioning of actuator, How to work on Educational & Engineering Level Actuator.	Mr. Ajeet Singh
13	28-12-2021	10:10 AM - 1:30 PM	4	Controlling Devices Using Arduino: What is relay, Types of Relay, How to connect relays to ARDUINO board.	Mr. Ajeet Singh
14	29-12-2021	10:10 AM - 1:30 PM	4	Controlling Electrical appliances with electromagnetic relays, Working of a matrix keypad, Interfacing a RF Module.	Mr. Ajeet Singh
15	30-12-2021	10:10 AM - 1:30 PM	4	Making It A Reality (Arduino Projects): Home automation using RFID, Solar Street Light system, Car Parking System, Water level management system.	Mr. Ajeet Singh
<b>Total Number of Lectures covered</b>			<b>36 (30 Hours)</b>		

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**Hindustan College of Science and Technology - Mathura**  
**Department Name: Electronics & Communication Engineering**  
**CLASS TIME TABLE FOR ODD SEMESTER 2021-22**

SESSION:	2021-22		W.E.F :		14/09/2021		CLASS TEACHER:																			
YEAR/SEM-SEC	2nd year/IIIrd sem		ROOM.NO :		315		Mr.Honey Kumar																			
Time / Day	I	II	III	IV	V	VI	VII	VIII																		
	10:10 TO 11:00	11:00 TO 11:50	11:50 TO 12:40	12:40 TO 01:30	01:30 TO 02:20	02:20 TO 03:10	03:10 TO 04:00	04:00 TO 04:50																		
MONDAY	DSD	Maths IV	CSS	TC	<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>	ED																		
	DG	MP	AB	KD				RM																		
TUESDAY	315	315	315	315				<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>	315															
	ED	Maths IV	<b>NAS LAB</b>								TC															
WEDNESDAY	RM	MP									DSD	TC	<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>	315										
	315	315	DG	KD							315															
THURSDAY	ED	NAS	315	315							<b>LUNCH</b>	<b>PDP</b>				<b>VAC Course (Arduino &amp; Its Application)</b>	315									
	RM	HK	Maths IV	CSS													315									
FRIDAY	DSD	315	MP	AB													<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>	315						
	DG	<b>PDP</b>	315	315																ED						
315	<b>ED LAB</b>		RM	315																<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>	315			
SATURDAY		Maths IV	ED	<b>ED LAB</b>																			<b>ED LAB</b>	<b>LUNCH</b>	<b>PDP</b>	<b>VAC Course (Arduino &amp; Its Application)</b>
	MP	RM	315																							
SATURDAY	315	315	<b>ED LAB</b>	<b>ED LAB</b>																			<b>LUNCH</b>			
	315	315			315	315																				

Name of the Subject	Subject Code	Name of the Faculty	Total No. of Lect./Tut./Practical		
			Lect.	Tut.	Pract.
Maths IV	KAS302	Dr. MP Singh(MP)	4		
Technical Communication	KAS301	Dr. KD Sharma(KD)	4	1	0
Electronic Devices	KEC301	Mrs.Rupali Mahajan(RM)	3	0	0
Digital System Design	KEC302	Mrs. Deepti Gupta(DG)	4	1	0
Network Analysis and Synthesis	KEC303	Mr.Honey Kumar(HK)	4	1	0
Computer System Security	KNC301	Mr.Atul Barsaiya(AB)	4	1	0
Electronics Devices Lab	KEC351	Mr.Himanshu P.Rajput(HR)/Chhaya Varun	3	0	0
Digital System Design Lab	KEC352	Mr.Himanshu P.Rajput(HR)/Anchal Katiyar	0	0	2
Network Analysis and Synthesis lab	KEC353	Mr.Honey Kumar(HK)/Molit Gupta	0	0	2
Mini Project or Internship Assessment	KEC354	Mr.Himanshu P.Rajput(HR)/TSS Senthil	0	0	2
VAC Course (Arduino & Its Application)	VEC2104	Ajeet Singh	0	0	2

Signature  
Time Table Incharge: Ajeet Singh

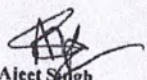
Director  
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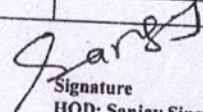
Signature  
HOD: Sanjay Singh  
Head  
Dept. of Electronics & Comm. Engg.  
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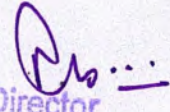
**Hindustan College of Science and Technology - Mathura**  
**Department Name: Electronics & Communication Engineering**  
**CLASS TIME TABLE FOR ODD SEMESTER 2021-22**

SESSION:	2021-22		W.E.F.:	14/09/2021	CLASS TEACHER:		Mrs.Rupali Mahajan			
YEAR/SEM-SEC:	3rd Year/Vth sem		ROOM.NO.:	306	CLASS TEACHER:		Mrs.Rupali Mahajan			
Time / Day	I	II	III	IV	V	VI	VII	VIII		
	10:10 TO 11:00	11:00 TO 11:50	11:50 TO 12:40	12:40 TO 01:30	01:30 TO 02:20	02:20 TO 03:10	03:10 TO 04:00	04:00 TO 04:50		
MONDAY	VLSI	EMI	IC	DSP	<b>LUNCH</b>	MPMC	COI	EMI		
	HK	DG	AJ	HPR		RM	NK	DG		
	306	306	306	306		306	306	306		
TUESDAY	IC	PDP		EMI		EMI	VLSI	DSP	MPMC	
	AJ			DG		DG	HK	HPR	RM	
	306			306		306	306	306	306	
WEDNESDAY	IC	MPMC LAB		DSP		DSP	306	306	306	
	AJ			HPR		HPR	EMI	VAC Course (Arduino & Its Application)		
	306			306		306	DG			
THURSDAY	VLSI	IC	DSP LAB/HPR			COI	COI	IC LAB		
	HK	AJ				306	306			
	306	306				306	306			
FRIDAY	MPMC	VLSI	DSP	EMI		PDP		MPMC		
	RM	HK	HPR	DG				RM	306	
	306	306	306	306				DSP	MPMC	VLSI
SATURDAY	IC	MINI PROJECT		COI		HPR	RM	HK		
	AJ			NK		306	306	306		
	306			306		306	306			
Name of the Subject		Subject Code	Name of the Faculty			Total No. of Lect./Tut./Practical				
Integrated Circuits		KEC-501	Mr Ajeet Singh(AS)			Lect.	Tut.	Pract.		
Microprocessor & Microcontroller		KEC-502	Mrs.Rupali Mahajan(RM)		4	1	0			
Digital Signal Processing		KEC-503	Mr.Himanshu P.Rajput(HPR)		4	1	0			
VLSI Technology		KEC-053	Mr.Honey Kumar(HK)		4	1	0			
Electronics Measurement & Instrumentation		KEC-057	Mrs. Deepti Gupta(DG)		4	1	0			
Constitution of India, Law and Engineering		KNC501	Dr.Nishant Kumar(NK)		4	1	0			
Integrated Circuits Lab		KEC-551	Mr.Honey Kumar(HK)/Anchal Katiyar		3	0	0			
Microprocessor & Microcontroller Lab		KEC-552	Mrs.Rupali Mahajan(RM)/Chhaya Varun		0	0	0			
Digital Signal Processing Lab		KEC-553	Mr.Himanshu P.Rajput(HPR)/Tss Senthil		0	0	2			
Mini Project/Internship		KEC-554	Mr.Honey Kumar(HK)/Mohit Gupta		0	0	2			
VAC Course (Arduino & Its Application)		VEC2104	Ajeet Singh		0	0	2			

Signature   
 Time Table Incharge: Ajeet Singh

  
 Signature  
 HOD: Sanjay Singh

**Head**  
 Dept. of Electronics & Comm. Engg.  
 Hindustan College of Science & Technology  
 Farah, Mathura

  
 Director  
 Hindustan College of  
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**Hindustan College of Science & Technology, Farah , Mathura**  
**Department of ELECTRONICS AND COMMUNICATION ENGINEERING**

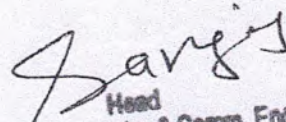
**Value Added Course - Registration Sheet**

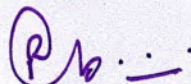
**Course Name: Arduino and its Applications Course Code: VEC2104**

**Session 2021-22**

**From September, 2021 to December, 2021**

Sr. No.	Roll No.	Name	Department	Semester	Signature of Student
1	2000640310001	Aman Singh	ECE	III	Aman
2	2000640310002	Sakshi Bansal	ECE	III	Sakshi
3	2000640310003	Sneh Kumar	ECE	III	Sneh Kumar
4	2100640319001	Anushka Singh Patel	ECE	III	Anushka
5	2100640319002	Chanchal Chauhan	ECE	III	Chanchal
6	2100640319003	Kabir Singh	ECE	III	K-Singh
7	2100640319004	Saurav Thainua	ECE	III	Saurav
8	2100640319005	Umesh Kushwah	ECE	III	Umesh
9	1900640310001	Dhiraj Singh	ECE	V	Dhiraj
10	1900640310002	Gaurav Yadav	ECE	V	Gaurav
11	1900640310003	Jay Babu Gupta	ECE	V	Jay Babu
12	1900640310004	Neha Sharma	ECE	V	Neha
13	1900640310005	Shubhangi Shakya	ECE	V	Shubhangi
14	1900640310006	Tanya Tiwari	ECE	V	Tanya
15	1900640310007	Vimal Gupta	ECE	V	Vimal Gupta

  
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# Hindustan College of Science & Technology

Department of ELECTRONICS AND COMMUNICATION ENGINEERING

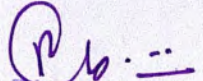
Value Added Course - Attendance sheet

Course Name: Arduino and its Applications Course Code: VEC2104

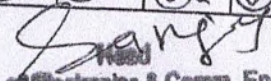
Session 2021-22 (Year 2021)

Session wise Attendance Sheet

S. No.	Roll No.	Name	SEM	Signature of the Student														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				15-Sep	22-Sep	29-Sep	6-Oct	13-Oct	27-Oct	10-Nov	17-Nov	24-Nov	1-Dec	8-Dec	15-Dec	28-Dec	29-Dec	30-Dec
1	2000640310001	Aman Singh	III	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	Aman	
2	2000640310002	Sakshi Bansal	III	Sakshi	Sakshi	A	Sakshi	Sakshi	Sakshi	Sakshi	A	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	
3	2000640310003	Sneh Kumar	III	Skumar	Skumar	Skumar	Skumar	Skumar	A	Skumar	Skumar	Skumar	Skumar	Skumar	Skumar	Skumar	Skumar	
4	2100640319001	Anushka Singh Patel	III	An	An	An	A	An	An	An	An	An	An	An	An	An	An	
5	2100640319002	Chanchal Chauhan	III	Chanchal	chanchal	chanchal	chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	Chanchal	
6	2100640319003	Kabir Singh	III	R.Singh	R.Singh	R.Singh	R.Singh	A	R.Singh	R.Singh	R.Singh	R.Singh	A	R.Singh	R.Singh	R.Singh	R.Singh	
7	2100640319004	Saurav Thainua	III	Saurav	Saurav	Saurav	Saurav	Saurav	A	Saurav	Saurav	Saurav	A	Saurav	Saurav	Saurav	Saurav	
8	2100640319005	Umesh Kushwah	III	Umesh	Umesh	Umesh	Umesh	Umesh	Umesh	Umesh	Umesh	A	Umesh	Umesh	Umesh	Umesh	Umesh	
9	1900640310001	Dhiraj Singh	V	Dh	A	Dh	Dh	Dh	Dh	Dh	Dh	A	Dh	Dh	Dh	Dh	Dh	
10	1900640310002	Gaurav Yadav	V	A	Gaurav	Gaurav	Gaurav	Gaurav	A	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	
11	1900640310003	Jay Babu Gupta	V	Jaybabu	Jaybabu	Jaybabu	Jaybabu	Jaybabu	Jaybabu	Jaybabu	Jaybabu	Jaybabu	A	Jaybabu	Jaybabu	Jaybabu	Jaybabu	
12	1900640310004	Neha Sharma	V	Neha	Neha	Neha	A	Neha	Neha	Neha	Neha	Neha	Neha	Neha	Neha	Neha	Neha	
13	1900640310005	Shubhangi Shakya	V	Shubh	shubh	shubh	shubh	Shubh	Shubh	Shubh	Shubh	Shubh	Shubh	A	shubh	Shubh	Shubh	
14	1900640310006	Tanya Tiwari	V	Tanya	Tanya	Tanya	Tanya	Tanya	Tanya	Tanya	Tanya	Tanya	Tanya	A	shubh	Shubh	Shubh	
15	1900640310007	Vimal Gupta	V	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	Vimal	

  
 Director

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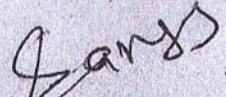
HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY,  
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### *Certificate of Completion*

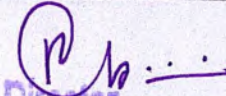
*Department of ELECTRONICS & COMMUNICATION ENGINEERING  
Academic Session 2021-22*

*This is to certify that Mr Aman Singh (Roll No: 2000640310001), III semester, Department of Electronics & Communication Engineering has successfully completed 30 hours of Value Added Course VEC2104 titled "Arduino and its Applications".*

  
Head of Department

  
Course Coordinator

  
Director

  
Director  
Hindustan College of  
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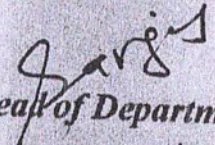
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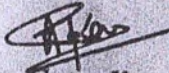


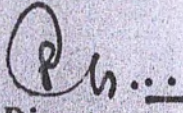
### *Certificate of Completion*

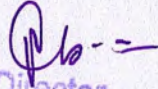
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*This is to certify that Ms Neha Sharma (Roll No: 1900640310004), V semester, Department of Electronics & Communication Engineering has successfully completed 30 hours of Value Added Course VEC2104 titled "Arduino and its Applications".*

  
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