



VICTORIA INSTITUTION (COLLEGE)

78-B, ACHARYA PRAFULLA CHANDRA ROAD, KOLKATA-700 009
Phone : 91-33-2360 0046 ■ Website : www.victoriacollege.co.in

Ref. No.....

Date...13/05/25.....

NOTICE

This is to inform you that a 30 hours of Discipline Specific Add on Course titled "**Innovative Experiments for Daily Life using Smartphone and Arduino: Creative Science & Problem-Solving at Your Fingertips**" will be organized by the Dept. of Botany, Dept. of Chemistry, Dept. of Physics and Dept. of Zoology in collaboration with IQAC, VIC on 14.06.2025 and 16.06.2025 to 19.06.2025. This course will be held at Suniti Sabhaghar, VIC from 10:30 a.m. to 5:00 p.m. daily.

Syllabus and the course schedule are attached herewith.

Students of the relevant departments/ programmes are encouraged to register their names to the Course Coordinator, Dr. Shinjinee Das Gupta of Dept. of Physics by 30th May, 2025.

Dr. Maitreyi Ray Kanjilal

Principal

Victoria Institution (College)

Principal
VICTORIA INSTITUTION
(College)





VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009

Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046

Website : www.victoriacollege.co.in

Ref. No.....

Date.....

Discipline Specific Add on Course on

"Innovative Experiments for Daily Life using Smartphone and Arduino:

Creative Science & Problem-Solving at Your Fingertips"

organized by the Dept. of Botany, Dept. of Chemistry, Dept. of Physics,

and Dept. of Zoology in collaboration with IQAC, VIC

14.06.2025, 16.06.2025 - 19.06.2025

Course Coordinator : Dr. Shinjinee Das Gupta (Dept. of Physics)

Syllabus

Total Duration - 30 hrs

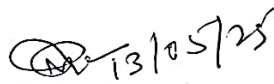
Unit I: Foundation (5 hrs)

- a) Basics of Electronics, sensors and actuators.
- b) Basics of Communication protocols.
- c) Introductory idea about the use of Smartphone for innovative scientific experiments.
- d) Basics of Arduino: hardware and programming.

- Unit II : Sample projects

(Theoretical background and Hands on Training Sessions) (23 hrs)

- 1) Fabrication of a Respirometer.
- 2) Motion Sensor using Arduino.
- 3) Identification of Plants using Smartphone App.
- 4) Fabrication of Pulse Oxymeter using Arduino.
- 5) Construction of Colorimeter using Smartphone.


Principal
VICTORIA INSTITUTION
(College)



VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009

Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046

Website : www.victoriacollege.co.in

Ref. No.....

Date.....

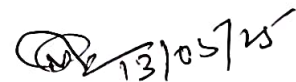
- 6) Fabrication of Assistive device using Ultrasonic Sensor and Arduino.
- 7) Temperature and Humidity measurement using Arduino.
- 8) Fabrication of Automatic Plant Watering System.
- 9) Construction of Paper Speaker using Smartphone.
- 10) Smartphone App based Plant Trait Analysis.
- 11) Measurement of PH level of common household chemicals.

Unit III : Session on Converting Innovation into a Start-up. (2hrs)

Suggested Readings :

- 1) Müller-Linow *et al.*, Plant Methods (2019) 15:2
- 2) Science Buddies
- 3) Journal of Biological Education
- 4) Arduino Cookbook by Michael Margolis

Grade will be decided on Continuous Evaluation during the Hands on Sessions and marks obtained in the final examination.

 13/05/25

Principal
VICTORIA INSTITUTION
(College)



VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009

Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046

Website : www.victoriacollege.co.in

Ref. No.....

Date.....

Discipline Specific Add on Course on

"Innovative Experiments for Daily Life using Smartphone and Arduino:

Creative Science & Problem-Solving at Your Fingertips"

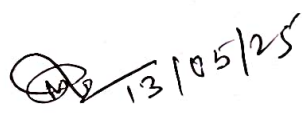
organized by the Dept. of Botany, Dept. of Chemistry, Dept. of Physics,
and Dept. of Zoology in collaboration with IQAC, VIC

Course Coordinator : Dr. Shinjinee Das Gupta (Dept. of Physics)

Course Schedule

Day 1: 14.06.2025 (Saturday)

Session Title	Duration	Resource person
Orientation	10:30 - 11:00 a.m.	Dr. Maitreyi Ray Kanjilal, Principal, VIC
Basics of Electronics, sensors, actuators, and hardware of Arduino	11:00 a.m.-12:30 p.m.	Dr. Subhendu Chandra, Dept. of Physics, VIC
Basics of Communication protocols	12:30 -1:30 p.m.	Dr. Maitreyi Ray Kanjilal, Principal, VIC
Lunch Break	1:30 - 2:00 p.m.	
Use of Smartphone for innovative scientific experiments	2:00-3:30 p.m.	Dr. Sudip Kumar Sinha, Dept. of Botany, VIC
Hands on Training session on use of Breadboard, basic electrical and electronic components, introductory projects using Arduino	3:30 - 5:00 p.m.	Dr. Subhendu Chandra and Dr. Shinjinee Das Gupta, Dept. of Physics, VIC


Principal
VICTORIA INSTITUTION
(College)



VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009

Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046

Website : www.victoriacollege.co.in

Ref. No.....

Date.....

Day 2: 16.06.2025 (Monday)

Session Title	Duration	Resource person
Basics of Arduino programming language	10:30 - 11:30 a.m.	Dr. Shinjinee Das Gupta, Dept. of Physics, VIC
Fabrication of a Respirometer	11:30 a.m.-1:30 p.m.	Dr. Sudip Kumar Sinha, Dept. of Botany, VIC
Lunch Break	1:30 - 2:00 p.m.	
Developing Motion Sensor using Arduino	2:00-3:30 p.m.	Dr. Gayatri Pal, Dept. of Physics, VIC
Identification of Plants using Smartphone app	3:30 - 5:00 p.m.	Ms. Sharmistha Basu, Dept. of Botany, VIC

Day 3: 17.06.2025 (Tuesday)

Session Title	Duration	Resource person
Fabrication of Pulse oxymeter using Arduino	10:30 a.m. - 12:30 p.m.	Dr. Sumallya Karmakar, Dept. of Zoology, VIC
Lunch Break	12:30 - 1:00 p.m.	
Construction of Colorimeter using Smartphone	1:00-3:00 p.m.	Dr. Sudip Kumar Sinha, Dept. of Botany, VIC
Fabrication of Assistive Device using Ultrasonic Sensor and Arduino	3:00 - 5:00 p.m.	Dr. Subhendu Chandra, Dept. of Physics, VIC


Principal
VICTORIA INSTITUTION
(College)



VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009

Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046

Website : www.victoriacollege.co.in

Ref. No.....

Date.....

Day 4: 18.06.2025 (Wednesday)

Session Title	Duration	Resource person
Temperature and Humidity measurement using Arduino	10:30 a.m. - 12:00 p.m.	Dr. Shinjinee Das Gupta, Dept. of Physics, VIC
Developing an Automatic Plant Watering System	12:30 - 1:30 p.m.	Dr. Sudip Kumar Sinha, Dept. of Botany, VIC
Lunch Break	1:30 - 2:00 p.m.	
Construction of Paper Speaker using Smartphone	2:00-5:00 p.m.	Dr. Subhendu Chandra, Dept. of Physics, VIC, Dr. Sudip Kumar Sinha, Dept. of Botany, VIC and Dr. Shinjinee Das Gupta, Dept. of Physics, VIC

Day 5: 19.06.2025 (Thursday)

Session Title	Duration	Resource person
App based Plant Trait Analysis	10:30 a.m. - 12:00 p.m.	Ms. Sharmistha Basu, Dept. of Botany, VIC
Measurement of PH level of common household chemicals	12:00 - 1:30 p.m.	Dr. Anuva Samanta, Dept. of Chemistry, VIC
Lunch Break	1:30 - 2:00 p.m.	
Expert Talk on Converting Innovation into a Start-up	2:00 - 4:00 p.m.	Dr. Prabir Kumar Aditya, Founder CEO, SPRINRIVER Technology Pvt. Ltd. (Spring & River)
Examination	4:00 -5:00 p.m.	
Valedictory Session	5:00 - 5:15 p.m.	

23/05/25

Principal
VICTORIA INSTITUTION
(College)

Discipline Specific Add on Course
organized by the Dept. of Botany, Dept. of Chemistry, Dept. of Physics,
and Dept. of Zoology in collaboration with IQAC, VIC
14.06.2025, 16.06.2025 - 19.06.2025

A 30 hours of Discipline Specific Add on Course titled "Innovative Experiments for Daily Life using Smartphone and Arduino: Creative Science & Problem-Solving at Your Fingertips" was organized by the Dept. of Botany, Dept. of Chemistry, Dept. of Physics, and Dept. of Zoology in collaboration with IQAC, VIC on 14.06.2025 and from 16.06.2025 to 19.06.2025 at Suniti Sabhaghar, VIC.

A total of 14 students from the Dept. of Botany, Dept. of Chemistry and Dept. of Physics enthusiastically and successfully completed the course. Our Principal, Dr. Maitreyi Ray Kanjilal and IQAC Industry Expert, Dr. Prabir Kumar Aditya were our esteemed resource persons along with some of the faculties of the organizing departments. Dr. Shinjinee Das Gupta of Dept. of Physics was the coordinator of this course.

As evident from the title this course was designed to introduce students to the creative integration of scientific principles with easily available and low-cost tools like smartphones and Arduino-based kits to explore and solve real-world problems through experimentation.

In this course students completed several mini projects using smartphone apps, Arduino and sensors like fabricating Respirometer, Identification of Plants using Smartphone App, fabrication of Pulse Oxymeter using Arduino, fabrication of Assistive device using Ultrasonic Sensor and Arduino, developing Automatic Plant Watering System using Arduino, measurement of PH level of common household chemicals using smartphone app to name a few.

We hope that this course certainly enhanced the students understanding of basic electronics and embedded systems, increased their interest in DIY science and low-cost innovation and strengthened interdisciplinary collaboration among students.



Principal madam explaining communication protocols



Hands on Sessions



Students with certificates