

Department of Chemistry
Sree Narayana College, Kollam

**Certificate Course in “LAB SAFETY
RULES AND METHODS”**

2019-2020





Sree Narayana College, Kollam

Affiliated to University of Kerala - NAAC reaccredited with 'A' grade

Research & PG Department of Chemistry

Certificate course in

'LAB SAFETY RULES AND METHODS'

Qualification: Plus Two (Science)

Duration: 6 months



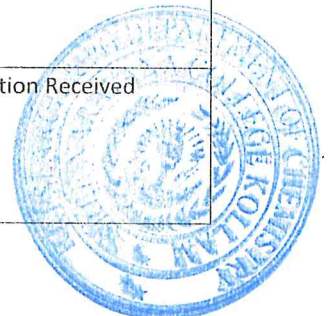
"Admission is open now and can be taken directly from Department of Chemistry"

Contact Details:

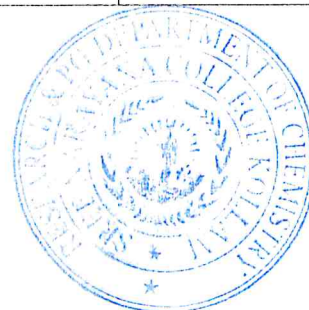
Course coordinator -Dr. Vivek B. Contact no- 9445158939

LIST OF APPLIED STUDENTS

SL NUMBER	NAME OF STUDENTS	ADDRESS	STATUS
1	ADHYA. V. S	PULIYATHU VEEDU MANDRIKAPURAM KILIKOLLOOR P.O 691004 Mob: 9349809622	Application Received
2	AJAYMON M.J	MULAVANA THEKKATHIL KAYAMKULAM PULLIKANAKKU 690537 Mob: 9447917951	Application Received
3	AKHILA J R	SREE RANGATHU VEEDU MYLODE MYLODE P O 691537 Mob: 9446706900	Application Received
4	DRISHYA SASIDHARAN	THIRUVONAM MYLODE MYLODE 691537 Mob: 9633274242	Application Received
5	LAKSHMY SURESH	JALAJA MANDIRAM ULIYANAD KARAMCDE P O 691579 Mob: 7736181659	Application Received
6	RESHMA G R	RESHMA BHAVAN NETTAYAM P O NETTAYAM 691537 Mob: 9539982537	Application Received
7	SANDEEP U	RAVI MANDIRAM PATTATHANAM P O PATTATHANAM 691021 Mob: 9947536954	Application Received
8	SILPA R	KALARIVILA PUTHEN VEEDU CHERUVAKKAL CHERUVAKKAL P O 691533 Mob: 8606789957	Application Received
9	SREEKUTTAN B	Erachikkottu Thottam Panayam Panayam 691601 Mob: 9633557483	Application Received
10	VARSHA S	THUNDIL VEEDU PANMANA PUTHENCHANTHA PO 691583 Mob: 9633835614	Application Received

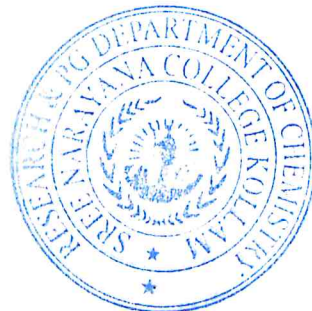


11	ABHILAL R S	CHENAVILA VEEDU MAYYANAD MAYYANAD 691303 Mob: 7510814393	Application Received
12	ABHIJITH S	THACHAYIL PANMANA PUTHENCHANTHA P O 691583 Mob: 9061323673	Application Received
13	BALU A	CHARIPPURAM BHOOTHAKULAM BHOOTHAKULAM P O 691302 Mob: 9745093852	Application Received
14	LAVANYA M A	MANIMANDIRAM Kaithakuzhy ADHICHANALOR 691573 Mob: 9645765475	Application Received
15	PARVATHY S R	UTHRAM THAZHAVA KADATHOOR 690523 Mob: 8547753234	Application Received
16	SWATHY S	KOCHUVEETIL S S Sadanam EDAPPALLYCOTTA P O EDAPPALLYCOTTA P O 691583 Mob: 8589829197	Application Received
17	VARSHA PRAKASH	Lekshmi Vilas Beach Road Chinnakada 691001 Mob: 9633758690	Application Received
18	RAKHI P	REGHU BHAVAN KOTTARAKARA PULAMON P O 691531 Mob: 9497178286	Application Received
19	BHAGYA PRAKASH	THIRUVONAM KALLUVATHUKKAL KALLUVATHUKKAL P O 691578 Mob: 9605858512	Application Received
20	AJEESHA S	RATHEESH BHAVAN CHATHANPARA ALAMCODE P O 695102 Mob: 9995654120	Application Received



21	GOPIKA R	kavungalveedu,power house jn, ayathil p kollam ayathil 691021 Mob: 9995075807Karimpaloor Puthenkulam P O Kollam-691302	Application Received
22	AJITH	ASWATHY BHAVAN KALLUVATHUKKAL KALLUVATHUKKAL 691574 Mob: 8156841071	Application Received
23	PREETHYMOL P	STAR HOUSE KERALAPURAM PERUMPUZHA P O 691504 Mob: 9400847580	Application Received

Surah Alharayil
Principal
Sree Narayana College
Kollam



CERTIFICATE COURSE

(Offered By Department of Chemistry, S N College, Kollam)

Lab Safety Rules and Methods

Total Hours: 30

Aim of the Course

To develop awareness among students about the different aspects of laboratory safety, since it is essential to take proper precautions and implement safety guidelines while working in the laboratory.

Course objectives

- General lab safety rules and guidelines
- How to detect and control lab hazards
- Requirements for a Chemical Hygiene Plan

GENERAL ASPECTS OF EVALUATION

Mode of Evaluation – Certificate Course on Lab Safety Rules and Methods

- i. Attendance for lecture session
- ii. Test for theory

The weightage is shown in Table 1

Table 1

No	Component	Marks
1	Paper-I	100



Turhaththaraiyil
Principal
Sree Narayana College
Kollam



DISTRIBUTION OF HOURS

Hours/Week	Course code	INSTRUCTIONAL HOURS
Theory	CPLSRM	5 × 6=30
5		

COURSE OUTCOME

Co No	COURSE OUTCOME Upon completion of this course, students	Cognitive Level
1	Develop knowledge about laboratory safety, laboratory emergencies and chemical hazards	U
2	Managing and working with chemicals, waste handling etc.	U, A
3	Develop skill in operating laboratory equipments.	A

LAB SAFETY RULES AND METHODS

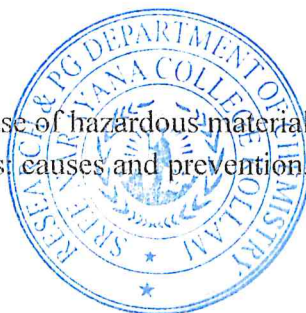
30 Hours

Module 1: Introduction to Laboratory Safety (6 hours)

Risks in a research laboratory, health effects due to hazardous chemical exposure, methods to determine the hazards associated with specific chemicals, exposure routes, toxicity risk assessment, personal protective equipment (PPE), proper attire: eye/face protection, lab coats, gloves, respirators, disposal/removal of PPE, emergency equipment safety showers/eye washes, environmental health and safety (EHS)

Module 2: Laboratory Emergencies: Spills and Fires (4 hours)

General preparation for emergencies, handling the accidental release of hazardous materials, notifications, spill containment and clean-up, leaking gas cylinders: causes and prevention, fires classification, fire extinguishers; types and method of operation



Module 3: Chemical Hazards (5 hours)

Chemical hygiene plan, the new safety data sheets (SDS) versus the old material safety data sheets (MSDS), assessment of chemical toxicity, toxic hazards: dose and risk assessment, types of toxins, flammable hazards, flammability characteristics, flammability classes, causes of ignition, reactive hazards, explosives.

Module 4: Managing and Working with Chemicals (6 hours)

General considerations: chemical segregation, transfer and transport, chemical fume hoods (safety, types, operation), other types of ventilation, working with highly toxic compounds: general considerations, planning, precautions for minimizing exposure – handling, in the event of a spill, working with flammable substances (standard operating procedures), working with highly reactive or explosive substances, working with compressed gases: parts of the cylinder, cylinder pressure regulator, storage guidelines, transporting cylinders, handling compressed gas cylinders.

Module 5: Waste Handling (4 hours)

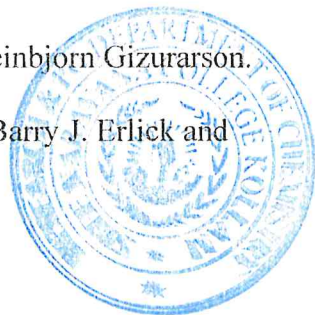
Characterization of waste, collection and storage (lids, leaks, labels, location, containers), consequences of mixing incompatibles solid wastes (chemicals, broken glass, sharps, cylinders, pick-up), hazardous waste minimization

Module 6: Laboratory Equipment (5 hours)

Working with electricity, working with water (liquid)-dependent equipment (hazards, proper use, heating baths), working with high pressure/vacuum, working with vacuum pumps, working with stirring and mixing devices, working with heating devices (oil, salt, sand baths, microwave ovens), working with ultrasonicators and centrifuges, Examples of common mistakes and ways to avoid them.

References

1. Laboratory safety for chemistry students (2nd ed): Robert H Hill and David C Finster, Wiley 2016, ISBN 9781119243380
2. CRC Handbook of Laboratory Safety: A. Keith Furr.
3. Handbook for Laboratory Safety: Benjamin Sveinbjornsson, Sveinbjorn Gizurarson.
4. Handbook of Laboratory Health and Safety Measures: S.B. Pal
5. Laboratory Safety: Theory and Practice: Anthony A. Fuscaldo, Barry J. Erlick and Barbara Hindman.



MARK LIST OF STUDENTS OF CERTIFICATE COURSE 2019-2020

Lab Safety Rules and Methods

Sl. No	Name	Marks of the Examination Theory (out of 100)	Grade
1	ADHYA. V. S	98	A+
2	AJAYMON M.J	96	A+
3	AKHILA J R	97	A+
4	DRISHYA SASIDHARAN	96	A+
5	LAKSHMY SURESH	94	A+
6	RESHMA G R	98	A+
7	SANDEEP U	100	A+
8	SILPA R	97	A+
9	SREEKUTTAN B	94	A+
10	VARSHA S	92	A+
11	ABHILAL R S	93	A+
12	ABHIJITH S	99	A+
13	BALU A	98	A+
14	LAVANYA M A	99	A+
15	PARVATHY S R	94	A+
16	SWATHY S	96	A+
17	VARSHA PRAKASH	94	A+
18	RAKHI P	95	A+
19	BHAGYA PRAKASH	99	A+
20	AJEESHA S	99	A+



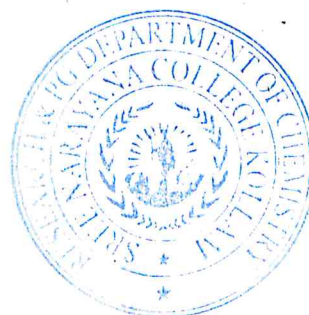
**Final report for the lab safety course conducted by the department of chemistry during
2019-2020**

PG & research department of chemistry, SN college Kollam, provided short-term certificate courses to students, with a central objective of supplementing their academic curricula. This certificate course in *lab safety rules and methods* is designed to introduce students, to the array of dangers associated with research in the chemical sciences.

Out of 23 students applied, 20 were selected for the course. The classes were handled by expert teachers from the chemistry department. This course has given students a basic understanding of laboratory safety and an awareness of potential hazards that may run into while working there.

After completing the course, the students are now aware of the need for safety when handling potentially hazardous materials and other hazards in the lab. With the help of this course, students will be able to recognize dangers, evaluate the risks associated with various chemicals and equipment, take the necessary precautions, and put safety rules into practice to ensure their safety while working in the lab. They can now practice safety procedures and use the applied procedures to handle chemicals and laboratory equipment. All of the selected candidates finished the certificate program successfully. In a summative assessment, all the students attained A+ grades.


Principal
Sree Narayana College
Kollam





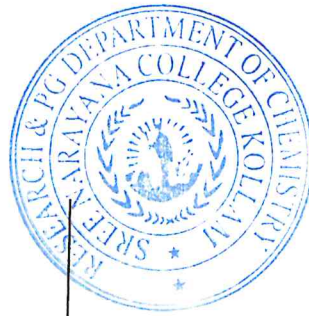
SREE NARAYANA COLLEGE KOLLAM

DEPARTEMENT OF CHEMISTRY

CERTIFICATE COURSE IN LAB SAFETY RULES AND METHODS

This is to certify that Mr./Ms./Mrs.....*Dr. S. S. Sathish Kumar*.....Department of.....
Chemistry.....has successfully completed Certificate Course in
.....Lab Safety Rules and Methods
during the Academic Year.....*2019-2020*.....

Course Coordinator



Principal



SREE NARAYANA COLLEGE KOLLAM

DEPARTEMENT OF CHEMISTRY

CERTIFICATE COURSE IN LAB SAFETY RULES AND METHODS

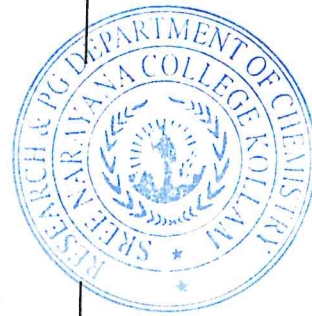
This is to certify that Mr./Ms./Mrs. Sandeep U......Department of.....
.....Chemistry.....has successfully completed Certificate Course in
.....Lab Safety Rules and Methods
during the Academic Year.....2019-2020.....

Vivek

Course Coordinator

R

Principal





SREE NARAYANA COLLEGE KOLLAM

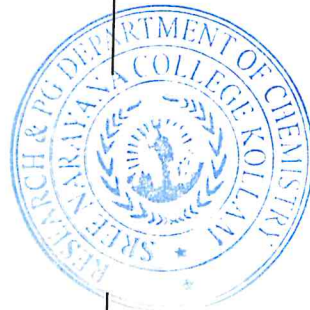
DEPARTEMENT OF CHEMISTRY

CERTIFICATE COURSE IN LAB SAFETY RULES AND METHODS

This is to certify that Mr./Ms./Mrs.....*Balu A*.....Department of.....
.....*Chemistry*.....has successfully completed Certificate Course in
.....Lab Safety Rules and Methods
during the Academic Year....*2019-2020*.....

Vijitha

Course Coordinator



[Signature]

Principal