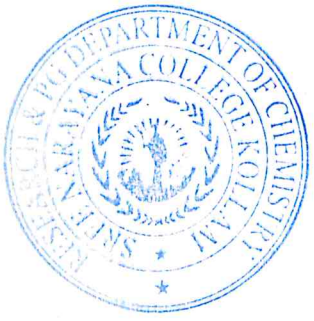
LAB SAFETY RULES AND METHODS

DEPARTMENT OF CHEMISTRY

SREE NARAYANA COLLEGE, KOLLAM

2018-2019



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: 6months

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

Contact Details:

HOD: Dr. V. L. Pushpa : +91 8129225858

Course coordinator: Dr. Rijith S: +91 9495538668

LIST OF APPLIED STUDENTS

SL NUMBER	NAME OF STUDENTS	ADDRESS	STATUS
1	AKHIL V. S	SREEVINAYAK,PERUMPUZHA PERUMPUZHA,691504 Mob: 9496781894	Application Received
2	ALEN SEBASTIAN ANTO	Puthussery Kattalan House,Chalakudy Potta,680722 Mob: 7356559495	Application Received
3	AROMAL S	DEVI KRIPA,KANDACHIRA PERINAD,691601 Mob: 7736852514	Application Received
4	ARUN A	SUVARNNA MANDIRAM,PEROOR T K M C P O,691005 Mob: 9605989557	Application Received
5	DEVIKA A S	DEVIDARSANAM,CHEMMAKKAD PO CHEMMAKKAD,691601 Mob: 9400993707	Application Received
6	HIMA PRASAD	MELEVILA PUTHEN VEEDU MUTTAPPALAM,MUTTAPPALAM 695145 Mob: 9745468094	Application Received
7	JITHINLAL M	KURUVIKUNNIL VEED,KADAMPANAD THUVAYOOR SOUTH,691552 Mob: 8129966524	Application Received
8	NANDUGOPAL V S	VAYASKARACHIRA HOUSE KARAPUZHA,KARAPUZHA 686003 Mob: 7356571176	Application Received
9	SHAHINA S	SHEEBA MANZIL,PALLICKAL K K KONAM P O,695604 Mob: 9656080378	Application Received
10	SREELEKSHMY P	LEKSHMI NIVAS,KALAKKODE KALAKKODE P O,691302 Mob: 8129057463	Application Received
11	SREESHMA S	THOPPILPUTHENVEEDU,MULLUVILA VADAKKEVILA P O,691010 Mob: 7306365221	Application Received
12	ABHIJITH S	KOKKATTUVEEDU,SAKTHIKULANGARA SAKTHIKULANGARA.P.O,691581 Mob: 8907282823	Application Received
13	AJAY J	RAJENDRA BHAVAN,THANGASSERY P O,THANGASSERY,691007 Mob: 8113025486	Application Received
14	MEGHA AS	KATTAZHIKAM,PARAVUR PARAVUR,691301 Mob: 9633395515	Application Received

15	VISHNU V	VISHNU BHAVANAM,MYNAGAPPALLY MYNAGAPPALLY P O,690519 Mob: 9847858356	Application Received
16	VISMAYA V	MELOOTTU VEEDU,NEDUVATHOOR NEELESWARAM P O,691505 Mob: 9645582975	Application Received
17	PREYES I S	KRISHNALAYAM,PAMPURAM KALLUVATHUKKAL,691578 Mob: 9497005583	Application Received
18	SRAVAN RAVI	VRINDAVANAM,KALLUVATHUKKAL CHIRAKKARA PO,691578 Mob: 8078346001	Application Received
19	SREELAL M S	V M NIVAS,HARIPAD CHERUTHANA,690517 Mob: 8075388312	Application Received
20	ANANDU M	NAVAMI,ODANAVATTOM ODANAVATTOM,691512 Mob: 9446960769	Application Received
21	VIDHYA PRASAD	SIVALAYAM,KANNANALLOOR KANNANALLOOR,691576 Mob: 9495055301	Application Received

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-1	100

DISTRIBUTION OF HOURS

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

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.

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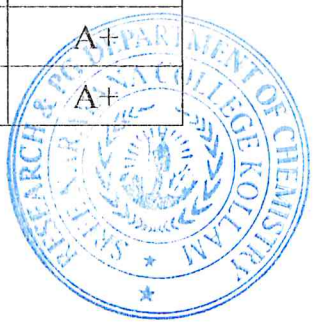
Sree Narayana College
Kollam

MARK LIST OF STUDENTS OF CERTIFICATE COURSE 2018-2019

Lab Safety Rules and Methods

Sl. No	Name	Marks of the Examination Theory (out of 100)	Grade
1	AKHIL V. S	98	A+
2	ALEN SEBASTIAN ANTO	96	A+
3	AROMAL S	97	A+
4	ARUN A	96	A+
5	DEVIKA A S	94	A+
6	HIMA PRASAD	98	A+
7	JITHINLAL M	100	A+
8	NANDUGOPAL V S	97	A+
9	SHAHINA S	94	A+
10	SREELEKSHMY P	92	A+
11	SREESHMA S	93	A+
12	ABHIJITH S	99	A+
13	AJAY J	98	A+
14	MEGHA AS	99	A+
15	VISHNU V	94	A+
16	VISMAYA V	96	A+
17	PREYES I S	94	A+
18	SRAVAN RAVI	95	A+
19	SREELAL M S	99	A+
20	ANANDU M	99	A+



Final report for the lab safety course conducted by the department of chemistry during 2018-2019

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 21 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.

RESEARCH & PG DEPARTMENT OF CHEMISTRY SREE NARAYANA COLLEGE KOLLAM

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Sree Narayana College
Kollam

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SREE NARAYANA COLLEGE KOLLAM

DEPARTEMENT OF CHEMISTRY

CERTIFICATE COURSE IN LAB SAFETY RULES AND METHODS

This is to certify that Mr./Ms./Mrs.....PREYA S. J. S.....Department of.....
.....CHEMISTRY.....has successfully completed Certificate Course in
.....Lab Safety Rules and Methods
during the Academic Year.....2018 - 2019.....

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~~.....HIMA PRASAD.....Department of.....
.....CHEMISTRY.....has successfully completed Certificate Course in
.....Lab Safety Rules and Methods
during the Academic Year.....2018-2019.....

DEPARTMENT OF CHEMISTRY SREE NARAYANA COLLEGE KOLLAM RESEARCH & PG

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. SRAVAN RAVI Department of..... CHEMISTRY has successfully completed Certificate Course in GHE Lab Safety Rules and Methods during the Academic Year 2018-2018

RESEARCH & PG DEPARTMENT OF CHEMISTRY SREE NARAYANA COLLEGE KOLLAM

Course Coordinator

Principal