
COLLEGE SAFETY PLAN

Search for Hazards | Analyse the Risks | Find the Causes
Eliminate the Causes | Tell Others | You are Safe

Prepared
Faculty and Students
School of Disaster Management

Facilitated
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Guide
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Director, School of Disaster Management



Centurion
UNIVERSITY

*Shaping lives...
Empowering Communities...*

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Vice-Chancellor's Message

Every institute has to design its safety plan to create a sense of confidence in its employees and others. This leads to enhanced productivity preventing disasters in the work environment. When safety plan is prepared and practiced in consultation with the students and staff, it is regarded as a critical core value of the University and enhances the reputation of the institution. A strong safety culture is to be inculcated among the students and employees by promoting safety awareness programmes.

Academic administrators, faculty and staff have ethical responsibility to care for their students' safety and to instil awareness about safety. They need to teach students the safety skills required to work in laboratories and in all other fields of hazards. While building a safety plan, students and staff acquire the skills to recognize hazards, to assess the risk of exposures to those hazards, to minimize the risk of exposures to hazards, and to respond to all sorts of emergencies.

I am happy to know that School of Disaster Management, CUTM is bringing a document on Institutional safety plan. I congratulate all the staff and students of School of Disaster Management for their efforts.

Prof. Damera Nageswara Rao

Vice Chancellor, CUTM



Dean's Message

S – Search for Hazards, A – Analyse the Risks, F – Find the Causes, E – Eliminate the Causes, T – Tell Others, Y – You are Safe.

Safety is, and must be a primary consideration in every campus activity. Centurion University of Technology and Management is committed to reducing or eliminating risks to the health and safety of its students, employees, and visitors. Some of the increasing potential threats are illnesses, injuries, accident, mishap and property damage resulting from unsafe practices and conditions. The University's commitment to health and safety can only be successful if the individual members of the University community do their part by accepting responsibility for developing and practicing safety awareness. Unsafe conditions that prevail should be reported and corrected.

Students, faculties, staff and respective authorities have their duties and responsibilities to ensure safety and security of each inhabitant or visitor and must take appropriate precautions against any types of hazards prevailing inside the campus. Faculties are responsible to ensure safety of the students while they are in the class room and make them aware on safe practices and behaviour. The concerned authorities of the hostels, library, reading rooms and laboratories need to be vigilant for any kind of potential threat to safety and security of the inmates.

All University personnel and students are responsible for the safety of visitors to our campus and should always take appropriate and necessary steps to protect them from any kind of inconvenience and hazards. All members of the University community must accept responsibility for their safety and the safety of those around them.

The initiative on bringing out a document on College Safety Plan by the students of Disaster Management with the facilitation of the concerned faculty is an eye opener for all of us to be aware some of the potential threats to lives and properties while being in and outside the campus and responds to the hazards and vulnerabilities on time.

Dr. Anita Patra

Dean, CUTM Paralakhemundi



Director's Message

You hear a lot about "safety" today; in the news, on the streets, in the society and in our homes. Nonetheless, this is a little known concept in the State and our Campus.

At home, parents eagerly await the safe return of their children from school, college, market or picnic. They feel restless until their children have returned home safe and sound. In schools and colleges the concern is equally shared by the Head of the institutions (Principals, Vice Chancellor, Registrar, Deans and HODs) who feel responsible for the safety and wellbeing of the children studying under their care and guidance.

At Government level, information about a multitude of safety practices are disseminated and mock drills are carried out on various aspects of safety - such as rescue, First Aid, relief and response - to ensure the safety the people of every at-risk communities against other natural phenomena that threaten to cause harm to life and property. The Administration at State, District and block have been continuously striving to establish safety measures that provide adequate protection for its citizens from natural calamities.

In addition, there are various types of accidents that have the potential to cause serious injuries, loss of life and damage to property. Many of these accidents are preventable through rigorous application of safety rules and appropriate prevention management.

It is therefore, very important that awareness is built systematically and safety and prevention regulations are enforced and applied in all possible aspects of life. It is imperative that a strong safety culture is inculcated by establishing a proactive system for reporting, investigating incidents, identifying causes, and implementing corrective actions. Safety education is the need of the day today.

The School of Disaster Management of Centurion University of Technology and Management with the help of the faculty and students of the University, have been put together this report titled, "College Safety Plan" as a basic reference guide for preparedness and preventive measures against various hazards in and outside the Campus.

This document provides guidance with examples, suggestions and recommendations that will help build, and establish a culture where safety becomes a second nature among the students, staff and faculty members, while carrying out their respective duties and responsibilities.

This is a first attempt and hence, I am aware that there would be plenty room for improvement. We assure you that we will apply ourselves to continuously revisit and improve this document, which will be published annually with a focused aim to establish the highest standards for safety on the Campus as well as the homes of every student who passes through our gates.

Subrat Dash

Director, SDM - CUTM

Safety Attitudes and Safety Awareness

■ ■ ■ Jaya Krishna Behera

Solid safety awareness and attitudes for safety values are the most important factors to live safe, allow others to live in safety and security either in academic institutes, in organizations, in communities or the in families. Building safety awareness requires a long-term effort. Mother with her limited knowledge teaches her school going children on safety measures especially while a child is playing in the ground, walking in the road, riding bicycle, and dealing with friends and so on. This process goes on and on for years till the children have learnt and practicing some of the basic safety measures.

Faculty and staff members have an ethical obligation to teach students, new students and new employees about the need for a positive, proactive attitude toward safety while in and around the campus doing their own duties and responsibilities. A sports master needs to constantly aware the players to follow some of the basic safety measures with respect and sincerely of mind and hearts and keep themselves safe and lead an example for others. When a driving instructor teaching someone how to drive a car, he would be remiss in his role as an instructor if does not mentions the need to wear seatbelts and avoid the use of alcohol or other drugs, and refrain from using cell phones, especially sending text messages and talking, while driving. The instructor following the safety rules while driving is as important to the students as what the instructor says. Similarly following safety policies and procedures in lab by lab technicians is just as important as the information the students receive in a presentation or the knowledge a student gains from an experiment. Thus, everyone who teaches or trains others on safety has to know and follow the appropriate safety practices in the laboratory, IT sector, electrical sector, mechanical sector etc.

Safety should be a focus for all students, staff and faculties as doers or receivers in all sorts of courses undertaken in the college or university. Students, faculties and staff doing all the normal activities from dawn to dusk without any injuries or illness are beneficial for an academic institute and for the staff and students in the long run for expansion in depth and magnitude. Every member of the University must share in the safety vision and demonstrate a high level of safety awareness, especially toward some of the potential hazards points and places.

Everyone involved in the teaching or learning process must be convinced of the necessity of good safety practices and a strong safety culture. Members include faculty, instructors, academic staff, teaching assistants, and stockroom personnel. In addition, maintenance, supporting staff and part timers must contribute to the safety culture.

The safety attitude means Value safety, work safely, prevent at-risk behaviour, promote safety, and accept responsibility for safety.

- Value safety: Safety is an integral part of what one does, its automatic, and it does not

change its priorities—it is never questioned and never compromised.

- **Work safely:** One continues to learn about safety, learns to recognize hazards, assesses the risks of hazards, manages the risks of hazards, and prepares to handle emergencies.
- **Prevent at-risk behaviour:** One does not cut corners or bypass safety measures in the laboratory and shares this information with others, as needed.
- **Promote safety:** One encourages and acknowledges others for working safely.
- **Accept responsibility for safety:** One takes steps to work safely, setting a positive example for others, and being accountable for safety.

School of Disaster Management - Centurion University of Technology and Management has taken pro – active initiative educating and spreading awareness on basic life safety measures through teaching students on Disaster Management in theories and practical and Teaching driving to the interested students, staff, faculties and people of all corners both in Jatni campus and in Bhubaneswar. We welcome each of you to join with us and in our coveted venture of making students, staff and faculties disaster resilient, safe and healthy living.

I really feel joy and contentment within my heart as we present this “Safety Plan” to the students and staff of Centurion University of Technology and Management, Parlakhemundi. Our efforts of preparing this piece of plan document would be meaningful when a student or staff reads this document and be aware and be prepared and let others to be in safe zone.

There are motivators, contributors and well-wishers whom I remember with love and gratitude for their invaluable suggestions, feedback and contribution and I am sure that without their support and cooperation this piece of document would not have been materialized.

I express my deep gratitude to our esteemed Vice Chancellor Prof. Damara Nageswara Rao, CUTM who appreciated our efforts and gave invaluable suggestions and feedback.

I too express my gratitude to Dr. Ashok Mishra the Registrar, CUTM for accepting and appreciating our efforts on safety plan.

I thank Dr. Anita Patra who with confidence accepted our proposal of preparing college safety plan and guided us as and when required.

I remain grateful to Prof. Subrat Dash the Director School of Disaster Management, CUTM who promptly and positively responded to my proposal and added a lot of values in bringing out this piece of document.

I wish to thank each and every student of 8th and 6th semesters and the students Task force for their many hours of research, writing, and review. They took time from their busy hours of studies and shared their experiences, expertise and recommendation. I humbly acknowledge their commendable job in bringing out this piece of document which can be eye openers for the inmates of the institute to be alert and aware of the possible hazards and respond on time for safety and security.

I apologize ahead of time for any untaught typos or unclear sentence structures. We have tried our best in writing, re writing, editing and analysing every chapter but despite of all our efforts, there may be errors or laxity in flow of thought. We hope while reading this piece of plan document, you will understand our strength and limitation as human and accept this piece of document as it is. However your valuable suggestion and feedback will surely help us to revise this document for next edition.

Jaya Krishna Behera

School of Disaster Management
Centurion University



Profile of the University

Centurion University of Technology & Management (CUTM) is the first multi sector private state university in Odisha, established through an act of state legislative assembly in 2010. However, the journey of the Centurion Group of Institutes, now the Centurion University of Technology and Management (CUTM), actually began in 2005 when a group of Professors [Prof. Mukti K Mishra, MA Applied Eco), MA (Pub Admn.) (Utkal University, India), MBA & PhD (Victoria University, Australia APA Scholar), Prof. D.N. Rao, IIM (C), British Chevening Scholar and former Professor of XIMB took over an ailing engineering institute – Jagannath Institute for Technology & Management (JITM) - which was set up in 1997 at the behest of the - then Prime Minister of India, Shri P.V. Narasimha Rao.

The core objective of CUTM is to 'Shaping Lives and Empowering Communities', creating wealth and livelihood opportunities at the bottom of the pyramid. The objective is achieved through education and training, financial services and other projects in rural communities, particularly in Left Wing Extremism (LWE) affected districts of southern Odisha and northern coastal Andhra Pradesh. CUTM has strong environmental as well as social values. The University delivers secondary, tertiary and vocational education and training through its campuses at Pralakhemundi (Jagannath Institute of Technology and Management: JITM) and Bhubaneswar (Centurion Institute of Technology: CIT), Bolangir & Rayagada.

The University is organized in the form of Schools, such as M S Swaminathan School of Agriculture, School of Architecture and Planning, School of Engineering & Technology, School of Management, School of Vocational Education & Training, and the Institute of Knowledge Society.

Centurion University believes in dynamic engagement with its stake holders and communities at large. To achieve this purpose, the University has incubated many social enterprises, social entrepreneurs, and outreach entities under the umbrella of Gram Tarang.

The University in a short span of four years has achieved national and global recognition as the skill university. It is in the forefront of debates on re- imagining the role of higher education institutions in the present Indian context. It constantly endeavours to be locally relevant. It believes in practice as research and focuses on product development through education, training, outreach and production.

Situated in the hub of extremist dominated and underdeveloped region of India, it is promising to become a role model for higher education institutions. Centurion believes in “ecological institutional” approach, i.e. becoming the hub of local economic and cultural development.

The Centurion Group of Institutions have more than 200 acres of campus area and 1 million sqft. of built-up area. It has more than 6000 students in graduate and postgraduate programs, over 15000 students in vocational programs. It has residential facility for 80% students and

50% faculty and staff. CUTM has upgraded its VSAT based Internet connectivity by establishing 10 - Mbps leased line from BSNL & 40 - Mbps leased line from Airtel, which runs through the entire campus. University is committed to providing seamless Internet connectivity round the clock to all students and faculty.

The University has well equipped laboratories, workshops, library, sports and health facilities. It works closely with National Skill Development Corporation (NSDC) and National Skill Development Authority (NSDA). It has many industry partners such as Ashok Leyland, Godrej, BEML, HAL, NALCO, HPCL, Café Coffee Day and banks like Allahabad Bank, Canara Bank and OBC, and NSDC who have funded infrastructure, students and run joint academic programs. Its research is focused on practice and generated many new designs for product development. Some of the ideas are at different stages of patenting. It has many academic partnerships with universities and renowned skill development agencies like Father Agnel and NTTF.

Its incubated organizations work in the area of skills, financial inclusion, urban micro- business services, entrepreneurship, tribal development, food processing and agriculture. Its reach spans across India from Manipal to Manipur.

Administrative Setup

Prof. (Dr) Mukti Kanta Mishra	President
Prof. D.N. Rao	Vice President
Prof. (Dr) D. Nageswara Rao	Vice Chancellor
Prof. Ardhendu Mouli Mohanty	Pro Vice Chancellor
Prof. Kalyan Kumar Banerjee	Pro Vice Chancellor, Learning & Development
Prof. Hari Bandhu Panda	Pro vice Chancellor, SoM
Prof. Ashok Mishra	Registrar
Brig.H.K. Sahu	Controller of Examinations
Prof. M. L. Narasimham	Dean, Academic Affairs
Prof. Anita Patra	Dean – School of Engineering & Technology
Prof. Prasant Kumar Mohanty	Dean, School of Management
Prof. Chandrabhanu Patnaik	Director, Institute of Knowledge Societies
Prof. R.K. Panigrahi	Dean, Academics, Jatni Campus
Rashmi Ranjan Parida	PGP Coordinator, School of Management,Paralakhemundi Campus & Coordinator, School of Distance Education
Prof. Jagannath Padhi	Director, CIT, Jatni
Prof. Susant Kumar Patnaik	Dean, Student Affairs
Prof. Mir Sadat Ali	Dean, School of Vocational Education and Training
Prof. Ramanand Nayak	Dean, School of Basic Sciences
Prof. Pratap Kumar Dakua	Coordinator, M. Tech, Paralakhemundi campus
Prof. Satyasis Mishra	Coordinator, M. Tech, Jatni Campus
Prof. Subrat Kumar Sarangi	Coordinator, Integrated B.Sc &M.Sc (Jatni campus)
Prof. S.P. Nanda	Associate Dean, PGP Coordinator, Integrated B.Sc &M.Sc & Coordinator, B.Sc Ag. (Paralakhemundi Campus)
Prof. Smita Mishra Panda	Director Research initiative & Ph.D. Programme Coordinator, Management& Humanities (Jatni Campus)
Prof. Ratnamala Mishra	Principal, School of Architecture, Jatni Campus
Ms. Sanjogita Mishra	Dean, Skills Integration

Total Number of Students, Teaching and Non - Teaching Staff

Total No. of teaching and Non-Teaching Staff							483
Students							
Year	B.Tech	Bsc. Ag	B.Tech. Ag	Bsc.	Diploma	ITI	Total Students
2012	368	—	—	—	—	—	368
2013	235	258	8	---	79	---	580
2014	281	260	83	---	106	223	953
2015	186	317	94	39	147	209	992
Total Students/ Discipline	1070	835	185	39	332	432	2893



Chapter 01 —

Background



Background

Community Managed Disaster Risk Reduction (CMDRR) as one of the important chapters under Disaster Management and Hazard, Vulnerability and Capacity assessment has been the important process of community contingency planning for achieving CMDRR.

While facilitating the chapter on CMDRR, the faculty clearly explained to the students of both the batches on what CMDRR is, how to achieve it, its process and indicators of CMDRR. Most of the rural communities and urban inhabitants have been facing Natural and Manmade disasters in every alternative year losing lives, livelihood and properties. Therefore facilitating community contingency plan with an eye to Disaster Risk Reduction has been an inevitable fact for those people.

While facilitating CCP, the facilitators and communities collect innumerable fact and information raising innumerable questions and queries like what are hazards? Types of hazards, Causes of hazards, Its potentialities to cause intensive and extensive damages, how to mitigate the hazards? How to prevent hazards? Responds to hazards, who are the most vulnerable stakeholders for the hazards? How do they get affected? What are their possible losses? Period of living in vulnerabilities, How do they overcome? Similarly what are their capacities and strength to respond to hazards? What are their traditional coping mechanisms? How do they equip themselves to respond to the hazards and disasters?

The students of Disaster Management do not facilitate Community Contingency Planning but make rigorous mock exercises within the groups answering to all such above questions and queries under Hazards, Vulnerability and Capacity/ Resource Assessment.

Emergence of College Safety Plan

Having understood the importance of Community Contingency Planning, the students agreed to the suggestion of the faculty to take up developing College Safety Plan with all tit and bit process and procedures and make it a solid document to refer and practice for minimum Safety Measures.

As part of the process, the faculty explored all possible ways and means of understanding first on College Safety Plan, its process and procedures and expected outcome. Having done this, the faculty prepared a detailed outlines on all the major aspects and issues and explained to the students for their better understanding. The next step of process was developed all possible questionnaires on all aspects with the participation of all students. Four Groups carried out Hazards, Vulnerability and Capacity Assessment collecting all findings and information from each and every question on hazards, vulnerability and capacity mapping. A core group headed by the faculty was formed taking expertise from every aspect who are to analyse, edit, compile and prepare a final college safety plan document. It has been a three months journey of all the students of 6th and 8th semesters and faculties as one unit of DM conceptualizing, building and materializing the plan.

The need for a Safety Plan

Safety Plan is a positive value—it prevents injuries, saves lives, and improves productivity and outcomes. When safety plan is prepared in consultation with students and staff and practiced and is regarded as a critical core value by the University and its leaders, it bestows a sense of confidence and caring in all of the people who are part of the institute. A strong safety culture is required to protect employees but is especially important in protecting students and in developing students' skills and awareness of safety. It also protects academic institutional reputations. This culture emanates from ethical, moral, and practical considerations, rather than regulatory requirements. Academic administrators, faculties, and staff members have ethical responsibilities to care for their students' safety and to instil awareness about safety. They need to teach students the safety skills required to work in laboratories and in all other fields tend to come in contact of various hazards. While building a Safety Plan, students and staff will acquire the skills to recognize hazards, to assess the risk of exposures to those hazards, to minimize the risk of exposures to hazards, and to be prepared to respond to all sorts of emergencies.



Chapter 02

Safety is our Concern

Safety is our Concern

Introduction

According to the definition explained under section 2 (d) of Disaster Management Act, 2005 "Disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or destruction of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of an individual, institutions, families or communities of the affected areas.

There are two important elements of disaster

1. An event i.e. natural or manmade, resulting in substantial loss of lives, human suffering and destruction of private and public properties.
2. An event of such magnitude or nature which is beyond the coping capacity of any community, individual, institutions or families of the affected areas.

Disasters can be categories as natural or manmade which basically occurs with or without the knowledge of human being, institutions or communities and not been able to respond to due to lack of capacity and techniques of know - how.

When we speak of disasters, its types, nature and magnitude in the University campus and its periphery of Parlakhemundi, it may be vehicle accident, road accident, health hazards, snake bite, fire accident, injuries, food poisoning, electric shock, chemical explosion, mishap, violence flash flood, , hailstorm, lightning, heat- wave and so on.

So far the campus has not witnessed most of these disasters except a few manmade disasters which has impacted injuries, loss of lives, damage of infrastructures, properties and assets of the University, faculties, staff and students. There may be many more disasters the campus may face as the change of time, situation and environment.

No doubt University has been more cautious to those prevailing hazardous conditions and responding with might and mane and on time, still all the inhabitants of the campus must be alert and be aware of all the hazards/dangers, risks, problems and challenges and respond on time so as to keep oneself and the institute safe.

The elimination or reduction of accident-related illness, injury and property damage is thus a cooperative effort and an important one. The University has a moral and legal obligation to ensure the physical welfare of its students, faculties, staff and visitors. Only if safety is practiced by all then the University can meet these obligations and provide a safe and healthy environment for the members of this community.

The students of Disaster Management, Centurion University of Technology and Management,

Parlakhemundi have felt the need of identification of hazards, undertaking risk avoidance measures, mechanism for alerting in time/ providing warnings, keeping emergency plans ready with all safety tools/kits and other measures and respond the possible hazards effectively and prudently so as to reduce the risk of injuries, loss of lives and properties. We invite all the students, staff and faculties to join in these risk reduction initiatives and ensure SAFETY of each and every inhabitant of the University.

Students, faculties and staff safety is a concern

The safety culture of an institution plays a critical role in setting the tone of safe living, peace and prosperity of the students, staff and faculties. Leaders are the key to building a strong culture of safety in the campus. Leaders inspire others to value safety, seek open and transparent communications to build trust, lead by example, accept responsibility for safety, and hold others accountable for safety.

In the academic arena the lines of authority should be clearly flowing from the president and Vice Chancellor to college deans, to department chairs, to faculty and principal investigators, staff and students. However, these lines of authority are not always observed or enforced, especially due to the responsibility for safety being transferred/ relegated to individual departments. As a result the authority often rests with the department chairs; the seniors, tenured faculties; and the administrators and they may not always accept responsibility for safety involved risk and threat to life.

Nevertheless safety is an educational responsibility. Teaching Basic safety measures in and through course curricular on electrical safety, chemical safety, mechanical safety, laboratory safety and safety at work place through continuous learning and spiral education is an inevitable subject of concern today.

Hazard identification, hazard assessment, and hazard management collectively known as hazards analysis are critical skills that need to be part of college safety measures. It is important to remember that there may not hazards at all or does not look like hazards or some hazards may not have been identified, assessed, or managed correctly, but sooner or later precautionary and preventive measures need to be ensured in the college campus.



Chapter 03

Safety Management Process

Safety Management Process

Introduction

A safe and healthy workplace/ University campus is one of the keys to success. By establishing good health and safety practices in the workplace is likely to have more motivated and productive employees, students, faculties and staff. It impacts on lower absenteeism rates, fewer disruptions and reductions in teaching and learning process. This will help to reduce serious impacts of injury and illness on employees, students, families and the wider community – and improve the teaching and learning reputation in far and wide.

The safety culture of an institution plays a critical role in setting the tone of safe living, peace and prosperity of the students, staff and faculties. Leaders are the key to building a strong culture of safety in the campus. Leaders inspire others to value safety, seek open and transparent communications to build trust, lead by example, accept responsibility for safety, and hold others accountable for safety.

In the academic arena the lines of authority should be clearly flowing from the president and Vice Chancellor, Registrar to college deans, to department chairs, to faculties, staff and students. However, these lines of authority are sometime not observed or enforced, especially due to the responsibility for safety being transferred/ relegated to individual departments. As a result the authority often rests with the department chairs; the seniors, tenured faculties; and the administrators and they may not always accept responsibility for safety involved risk and threat to life.

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Hazard management Process

There are four steps you need to follow to manage the hazards in your business effectively and continually. The steps are:

1. **Identifying Hazards** : Identifying the things that may cause injury or harm to health.
2. **Assessing the Hazards** : Evaluating whether any are significant (as defined by the HSE Act), and how likely and serious the injuries or harm would be if workers were exposed to the hazards
3. **Controlling the hazards** : Taking all practicable steps to eliminate, isolate or minimise the significant hazards
4. **Monitoring Hazards** : Any exposure to a hazard that has been eliminated, isolated or minimised.

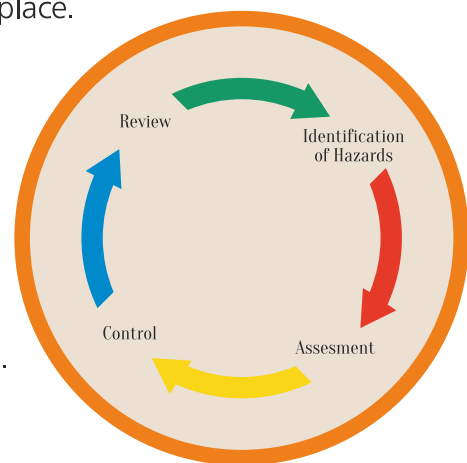
The hazard Management Process

Step 1 : Identification of Hazards

To identify all potential hazards, one need to look beyond obvious physical ones and look for hazards that are part of the work is carried out in your workplace.

Identify :

- What are the possible hazards
- Who are the possible stakeholders may get affected by the hazards.
- How different tasks are performed
- The places of stay, study and practical exercises etc.
- The layout of the work site or workplace
- How work is organised and the physical conditions of the persons and infrastructures etc.



Identification of hazards must be initiated with the involvement of students and staff apart from the people who do their specific jobs.

- There are a number of ways to identify hazards, including:
- Workplace and people observations
- Accident and near miss reports and investigations
- Analysing individual tasks
- Using staff meetings to ask staff about hazards they have noticed
- Injury/disease information and literature sources.

Step 2 : Assessment

It is required to identify and assess those hazards that may cause serious harm or have caused harms and all possible and practicable steps should be taken to control them. Assessment helps to know the cause and effect of hazards and likely to find out the queries of who, what, when, how where and the magnitude of risk due to various hazards.

Step 3 : Control

The next step is to decide on the appropriate way to control the significant hazards identified. They must be controlled using the hierarchy of controls. This means taking action to eliminate, isolate or minimise the risk of harm occurring.

Step 4 : Review

Hazards that are controlled by isolation or minimization must be monitored closely. This should be done as part of your normal daily working practices and through a more detailed yearly review. The possible hazards have been identified in different aspects and reflected in the respective chapters.

Health and Safety Improvement Cycle

The Health and Safety Improvement Cycle is a roadmap to reducing workplace injuries, violence and illnesses. It is a guide for building comprehensive workplace health and safety systems. The Health and Safety Improvement Cycle provides a continuous process of improvement. By working through the Cycle, we can set up and support the comprehensive health and safety systems required to keep workplaces or campus safe.

There are three key steps involved:

1. Review
2. Plan
3. Action

The three steps of 'review', 'plan' and 'action' keep on working in a cycle of continuous improvement. The 'action' step includes all the key activities of a comprehensive health and safety programme. Commitment and communication are needed throughout. Implementing health and safety systems is an on-going process that requires constant monitoring and supervision, with a goal of continuous improvement. The review should lead to a plan that is then translated into actions, and these actions may in turn be reviewed and lead to new plans and actions.

Review :

A review is important to assess institute's injury prevention performance. It will enable to determine the value of health and safety activities and provide the stakeholders with a basis for planning. The main purpose of an initial review is to gather material to help develop an improvement plan. This could include:

- Identifying hazards and injury factors
- Identifying the effectiveness of your current systems and practices
- Establishing baselines to measure future progress
- Quantify the upfront and hidden costs of workplace illnesses and injuries.

Plan

Planning involves setting goals, objectives and actions to make improvements happen. When planning, you need to follow SMART formula so as to eliminate or minimise factors causing injuries and illness within the available time, money, people, skill and knowledge.

S - Specific	Set objectives (action or events) that has outcomes.
M- Measurable	We need to have the means to track our progress and measure whether we achieve the outcome.
A - Achievable	Coveted goals should be achievable
R- Realistic	Goal needs to be something that can be reasonably make real in achieving.
T - Timely	Have a timeframe for achieving goal. ..Tasks without deadlines do not get done.

Action

Action means developing, implementing and monitoring systems and practices. The main areas of focus for action are:

1. Hazard management
2. Incident investigation
3. Training and supervision
4. Employee participation
5. Emergency readiness
6. Contractor management
7. Return to work.



Commitment and communication

It is vital that Employers, Authorities, Managers and students, faculties and employees are committed to the task of making the workplace safer. It is important to maintain good communication with staff on health and safety issues. A good approach is to use a range of formal and informal communication channels to ensure that health and safety activities are well understood.

Recommendation for Health and Safety Measures

- Institutional authority's commitment to safety management practices
- Regular Planning, review and evaluation
- Hazard identification, assessment and management
- Information, training and supervision
- Incident and injury reporting, recording and investigation
- Emergency planning and readiness
- Protection of employees from on-site work undertaken by contractors and subcontractors
- Workplace observation – confirmation of safe systems in action.
- Focus group interviews – confirmation of safe systems in action.
- Annually review health and safety objectives and line functionaries ' performance
- Encourage accurate and timely reporting and recording of all incidents and injuries
- Investigate all reported incidents and injuries to identify all contributing factors and, where appropriate, formulate plans for corrective action
- Actively encourage the early reporting of any pain or discomfort
- Identify all existing and new hazards and take all practicable steps to eliminate, isolate or minimise exposure to any significant hazards
- Ensure that all employees are made aware of the hazards in their work areas and are adequately trained so they can carry out their duties in a safe manner
- Encourage employee consultation and participation in all health and safety matters
- Enable employees to elect health and safety representatives
- Promote a system of continuous improvement, including annual reviews of policies and procedures



Chapter 04

Safety Measures in Construction Sites

Safety Measures in Construction Sites

Introduction

Most accidents can be prevented by taking simple measures or adopting proper working procedures. This handbook is intended to outline important issues on safety and health that should be paid attention to on construction sites for easy reference by the workers. If we work carefully and take appropriate safety measures, there will definitely be fewer work injury cases, and our sites will become a safe and secure place to work in. Employees and students should cooperate with the authorities in complying with the safety legislation and guidelines, and should not do anything to endanger themselves and other persons.

Basic Rules for Safety

Clean up construction sites

- Keep passages clear all the time.
- Sort out materials and pile them up safely .The stacks should not be too high.
- Beware of floor openings and ensure that they are fenced or covered.
- Remove refuse as soon as possible.
- Provide sufficient lighting.
- Familiarize with the location and the operation of fire-fighting equipment

Safety measures

- Before one operate a machine, ensure that the dangerous part of the machine has been installed with a guard.
- Avoid going to any area with insufficient lighting as there may be some dangerous places which have not been provided with fencing.
- Keep vigilant all the time and watch out for moving cranes, hooks or other lifting equipment.
- Before you use any electrical installation or tool, check the condition of its electric cables.
- Avoid dragging electric cables on the ground or allowing the cables to come into contact with water.
- Use electrical tools installed with an earth leakage circuit breaker.
- Use and handle chemicals with care.

Personal Safety

- Wear protective equipment.
- Do not drink or take drugs while working.
- Pay attention to personal hygiene.
- Do not play in the workplace.
- Report to your supervisor immediately if you notice any unsafe condition

Emergency Response to Accidents

One should have a good understanding of working environment and the instructions given by the authority. When evacuation is required in an emergency, one should keep calm and find out:

- What dangerous situation the alarm refers to.
- The routes for evacuation.
- The safe place that you should go to as designated by the company.
- When someone is found seriously injured, you should:
- Keep calm.
- Seek help immediately.
- Accompany the injured person.
- Assist in the immediate rescue work as far as possible.
- Call the site safety staff.
- Do not try to move the injured person unless it is really necessary to do so.
- Do not tamper with the accident scene while waiting for the arrival of the investigation team.
- Put out the fire with a fire extinguisher if it is a small fire.
- If the blaze is out of control, do not try to extinguish the fire on your own. Call the Fire Services Department right away.
- Always pay attention to the emergency telephone numbers posted on the notice board in the site office.

False work

If you are engaged in false work operation, you should:

- Check whether the false work is erected in accordance with the design.
- Make sure that the false work is securely erected.
- Check whether the strut of the false work is secure.
- Ensure that the props are erected vertically and arranged at a suitable distance in a row.
- Report to your supervisor when any unsafe situation is found.

Scaffold/Framework

- Do not use scaffolds unless they have been erected by trained workmen and under the supervision of a competent person.
- Do not use a scaffold unless it has been inspected and certified safe by a competent person before use.
- Strictly follow the instructions of a competent person. Do not alter the scaffold unless authorized to do so.
- Do not work on an unfinished scaffold
- When it is necessary to work on a mobile scaffold, lock the wheels of the scaffold before you start working.
- Do not work on a scaffold unless it has been provided with a suitable working platform.



Fencing

- Do not work in a dangerous place unless its floor edges and openings have been installed with secure fencing.
- If you notice any dangerous places that have not been installed with fencing or the fencing has been damaged, reinstall or repair the fencing.
- If this is beyond your capability, inform your supervisor at once.



Ladder

- Use a ladder which is of good construction, sound material and adequate strength.
- Examine the ladder before using it and inspect it at regular intervals.
- Place the ladder on a level and firm footing.
- Place the ladder at an appropriate angle.



- Ensure that the ladder has a sufficient length. The upper end of the ladder should be at least
- 1 metre above the landing against which the ladder leans.
- Do not use a ladder unless its upper or lower end has been securely fixed or secured by another worker.
- If there are electrical installations nearby, do not use metal ladders.
- If work is carried out 2 metres or more above the floor, use a suitable working platform.

Lifting Appliance and Gear

- Do not operate a lifting appliance unless trained. In the case of a crane, a certificate is required.
- Before using lifting gear such as hook, shackle or chain sling, check whether there is any wear and tear.
- Check the weight of the load to be lifted.
- Do not exceed the safe working load of a lifting appliance or lifting gear.
- Adopt the correct lifting method.
- Do not use a lifting appliance or lifting gear unless it has been examined and certified safe by a competent examiner.
- Do not use a lifting appliance unless it has been regularly repaired and maintained by a competent person.
- No unauthorized repair is allowed.
- Follow the safe working instructions of the manufacturer of a lifting appliance.
- Do not work beneath any suspended load.



Machines for lifting Materials

- Do not ride on a material hoist.
- Do not operate a material hoist without prior proper training.
- Do not exceed the safe working load of a material hoist.
- Do not use a material hoist unless it has been examined and certified safe by a competent examiner.
- Do not use a material hoist unless its gates have been installed with an effective interlocking safety system.

- Do not use a damaged tool.
- Do not use an electric tool unless its connecting cable is well protected.
- Do not use an electric tool unless its metal casing is earthed and its power supply is provided with an earth leakage circuit breaker.
- Do not repair or alter any electrical installation unless competent to do so.
- If you meet any fault or problem, report it to your supervisor immediately.

Excavations

- Keep the fence on all sides of an excavation intact.
- Use safe access for ingress and egress.
- Do not pile soil or any other materials at the edge of an excavation.
- Make sure that a trench is securely shored before working in it



Gas Welding and Flame Cutting

- Do not use the equipment for gas welding or flame cutting unless you have attained the age of 18 years and hold a valid certificate.
- Do not use any gas cylinder unless has been fitted with flashback arrestors.
- Wear personal protective equipment.
- Keep the workplace clean.
- Place fire extinguishers within reach.
- Keep gas cylinders in an upright position and secure it properly to avoid overturning.
- If gas leakage is detected, report it to your supervisor immediately.



Fire Risk

- There is always a fire risk. However, the chances of fire can be reduced, and you will know what to do when a fire breaks out if you:
- Always keep the workplace clean and tidy.
- Handle machinery and tools that may generate sparks or heat carefully.
- Do not smoke or use naked flames in any area where flammable and explosive substances are stored.
- Know where fire extinguishers are located and how they are used.
- Know the place of assembly for fire evacuation.



Public Safety

- Pay attention to public safety. Members of the public are often unaware of or do not understand the work carried out on construction sites and the risks involved.
- Take great care to prevent the fall of materials from height.
- Do not stack materials on floor edges or on scaffolds.

Waste Disposal

- Dispose all wastes, and unwanted materials must be disposed of at a designated place.
- Notify your supervisor of the requirement for the separate disposal of chemical or inflammable wastes.
- Do not leave planks with nails on passageways.

Safety Supervisors

- Their responsibility is to assist others to work smoothly and safely.
- They have received specific safety training and are important members of the construction team.
- They have legal responsibility or liability for the overall safety of the construction site.
- You should get to know your safety supervisor.



Eye Protection

- A wise worker will certainly take good care of his eyesight.
- A small fragment may cause serious consequences if it enters one's eyes.
- When there is a risk of eye injury, such as in concrete breaking or using abrasive wheels, you should wear suitable eye protectors.
- Take proper care of the eye protectors provided to you.
- Replace damaged or defective eye protectors immediately.
- Ensure that eye protectors are comfortable to wear, and keep clean.
- Use eye protectors for eye protection
- Do not put it on your head or hang it on your neck.
- Bear in mind that eye protectors are replaceable, but not your eyes.



Noise

- Wear ear protectors in areas with high noise levels.
- Properly wear ear protectors according to the manufacturer's instructions.

- Do not reuse disposable ear plugs.
- Clean ear protectors regularly

Personal Protective Equipment

- For your own safety and interest, use the personal protective equipment provided by your employer.
- Wear gloves when handling or contacting chemicals.
- Remember to wear a mask when working in a dusty environment.
- Wear eye and ear protectors whenever necessary.
- Wear a safety harness and secure it to a safe anchorage point when working at height. A bamboo scaffold is not a safe anchorage point, so do not fasten the safety harness to it.
- Wear safety shoes to prevent foot injury.
- Consult your supervisor if in doubt.



Safety Helmet

- Wear a safety helmet on a construction site.
- Keep the harness of the helmet clean and make sure that it fits well.
- Do not drill any holes on the helmet or use it for pounding



First Aid

If you sustain an injury or feel not well while at work, even if it is minor, go to the first aid room right away for medical treatment and notify your supervisor.

Manual Handling Operations

- Avoid manual handling operations as far as possible to minimize the risk of injury.
- Estimate the weight of the load.
- Lift an object with a correct posture.
- Wear suitable protective equipment.
- Put on gloves as far as possible to protect your hands from any cut, scratch or puncture, and wear safety boots or shoes to prevent injury to toes by heavy falling objects.
- Seek assistance from someone in lifting a load if necessary.



Personal Hygiene

- Keep yourself clean.
- Wash hands before meals and after using the toilet.
- Dress tidily and in protective clothing.

Alcohol and Drugs

- Do not drink alcohol, or take drugs, while at work.
- If you need to take drugs due to illness, report it to your supervisor.



Chapter 05

Electrical Safety

Electrical Safety

Introduction

“You do not have to remove all the risks but the law requires you to do everything reasonably practicable” to protect people from harm” One cannot see electricity but one is aware of it every day. One sees it used in countless ways. One cannot taste or smell electricity, but one can feel it. Safety should ALWAYS be the foremost concern for anyone who is working on or around electricity. Electricity is good servant but bad master. It can prove to be very dangerous if circuits are not properly protected. Electricity can kill or severely injure people and cause damage to property. Every year many accidents at work involving electric shock or burns are reported to the hospital. Most of the fatal incidents are caused by contact with overhead power lines. Even non-fatal shocks can cause severe and permanent injury. For example, shocks from faulty equipment may lead to falls from ladders, scaffolds or other work platforms. Those using or working with electricity may not be the only ones at risk – poor electrical installations and faulty electrical appliances can lead to fire, which may also cause death or injury to others. Most of these accidents can be avoided by careful planning and straightforward precautions.

This note provides some basic measures to help you control the risks from your use of electricity at work.

What are the possible hazards and health risk

- Come in contact with live electrical parts causing shock and burns.
- 230 volts AC, can kill, faults in AC could cause fire and fire explosion.
- In wet surroundings – unsuitable equipment can easily become live and can make its surroundings live.
- Outdoors - equipment may not only become wet but may be at greater risk of damage
- Some items of equipment can also involve greater risk than others.
- Extension leads are particularly liable to damage – to their plugs, sockets, connections and the cable itself.

Safety measures

Once the risk assessment is completed one can use the findings to reduce unacceptable risks from the electrical equipment in the workplace. There are many things which can be done to achieve this, and some of them are listed below. Ensure people working on or with an electrical equipment or systems are 'competent' for the task competent means having suitable training, skill, and knowledge for the task to prevent injury to themselves and others.

- Ensure the electrical installation is safe make sure that: new electrical systems are installed to a suitable standard.
- Requirements for electrical installations and then maintain them in a safe condition;
- Existing installations are maintained in a safe condition; and you provide enough socket outlets because overloading socket outlets by using adaptors can cause fire.
- Provide safe and suitable equipment.
- Choose equipment that is suitable for its working environment.
- Electrical risks can sometimes be eliminated by using air, hydraulic or hand- powered tools which are especially useful in harsh conditions.
- Make sure that equipment is safe when supplied and that it is then maintained in a safe condition.
- Provide an accessible and clearly identified switch near each fixed machine to cut off power in an emergency.
- For portable equipment, use socket outlets which are close by so that equipment can be easily disconnected in an emergency.
- The ends of flexible cables should always have the outer sheath of the cable firmly clamped to stop the wires (particularly the earth) pulling out of the terminals.
- Replace damaged sections of cable completely.
- Use proper connectors or cable couplers to join lengths of cable. Do not use strip connector blocks covered in insulating tape.
- Some types of equipment are double insulated. These are often marked with a 'double-square' symbol. The supply leads have only two wires – live (brown) and neutral (blue). Make sure they are properly connected if the plug is not moulded.
- Protect light bulbs and other equipment which could easily be damaged in use.
- In potentially flammable or explosive atmospheres, only special electrical equipment designed for these areas should be used.

Test before Touch

- No one should even consider touching any circuit part or conductor unless they have verified that it has no voltage on it. Follow the best practice i.e. “Test before touch” using tester. To make certain the tester is still functioning, again apply the tester to the original known live circuit and verify it is still functioning.
- The second part of this habit is to always use insulating gloves. This does not mean leather gloves, but rubber insulating gloves that are the proper voltage class and have been tested (testing must occur after six months of use or one year if the gloves are stored properly).



Chapter 06

Building Safety

Building Safety

Introduction

Except a few supporting staff whose nature of jobs are like farm work or mobile work in or outside the campus, most of the other stakeholders like students, faculty, staff and family members do their entrusted jobs/ duties being inside the buildings/ infrastructures like class rooms, laboratories, IT, libraries, hostels, kitchen, MDC, training halls and so on. The buildings and infrastructures meant for students, staff, faculty and families need to be safe and secure to reside and do their respective jobs.

Possible Hazards and Safety Measures

- Each and every building and infrastructure meant for different stakeholders to live in and work need to have basic ventilator system so that the quality of an outside fresh air may easily get into the buildings and infrastructures and get out the other carbon or hydrogen gas. This basic facility is very important for employees' health, comfort and productivity.
- The person concern or inmates of the buildings and infrastructures need to bring in to the notice of the authority in case of blockade in cross ventilation.
- Only designated spaces/ rooms are meant for storage.
- Do not use the common space/ rooms for storage of any equipment, machines, electrical appliances and others materials as these are hazardous and may be the cause of fire attack and explosion.
- The main doors or exit routes should be free from any kind of objects or substances for an easy escape in case of any emergency like manmade or natural disasters.
- In case of emergencies such as fires, gas leaks and chemical spills, immediately call in built **Risk Management Team**/ Force or Police services from an on-campus phone number to respond.
- All renovation, remodelling, and construction work must be coordinated through **Architectural & Civil Engineering Services**.
- All kinds of authentic permits needs to be obtain from the concern authorities prior to commencing any types of construction work.
- Professional workers like masons, carpenters, electricians, plumbers and other skilled labourers need to be engaged for construction works.
- Basic safety measures like helmets, globes, masks and other safety tools need to be used by the professional while on work.

- Basic services like adequate ladders, lift, drudgery equipment, water filter, First Aid kits and shed for the children need to be made available for the safety and security of all those working in the sites.
- Buildings and infrastructures in hazardous condition need to be renovated immediately so as to protect the habitants from risk of life.
- It is a well-known fact that the asbestos are potentially dangerous when they are in a loose condition and become airborne. Therefore, it is important not to disturb intact materials.
- In case of asbestos being damaged or cracked should be immediately replaced with new ones.
- Many older paints contain lead pigments, which are a potential health hazard. As an older paint is removed by washing or scraping, employees must make sure no living creature will ingest or inhale lead dust. Children and pregnant women should not risk any exposure. Paint chips must be caught in a drop cloth and disposed of properly.
- Painting of the old buildings needs to be done during holidays so that the students, staff and faculties do not get affected by it.
- There need to be poster at the work site mentioning work is on progress and be aware of all kind of hazardous materials may come in contact.
- Never leave food or drinks in a work area with potential lead exposure nor should anyone consume food during potential lead exposure.
- The buildings are appearing with some major cracks in the MBA block, there are also minor cracks in the hostel buildings.
- The cracks in the corners of the CRC-1 and CRC-2 are due to seepage.
- During the rainy season there is a problem with water clogging, which causes the hazards. Students may fall on the floors.
- As there are different laboratories, there is a chance of fire accidents in the laboratories. Fire extinguishers in the laboratories are required for the safety of the lab technicians, students, faculties. Laboratories and buildings.
- The kitchen is built in truss type structures which may be get blown away due to high wind. So to avoid hazards it should be checked properly every month.
- During new construction of building proper planning and skilled labourers need to be engaged in the construction so as to ensure quality of the building.
- Automatic fire detection and fire alarms are needed to provide safe against fire.
- Need to facilitate and promote the cost-effective construction of buildings.
- Fire fighting-services and equipment should be in the kitchens and dining halls.
- Emergency lifts must be constructed in campus.
- Proper route map and exit signs should be provided.

- Damp-proofing should provide to avoid moisture effect on walls.
- Pile caps should be given in below foundation to make building strong.
- Different soil tests should be done before construction.
- Proper maintenance and regular repairs should be done for buildings.
- **Possible hazards and safety measures for Library**

Library security is everyone's job. Everyone should be aware of what is happening around him or her and be prepared to step in when an issue needs addressing, especially if escalation fire or rain can be avoided or prevented. Even if a library can afford to hire security staff, security officers cannot be everywhere and they should not be expected to handle every little hazard or problem behaviour.

- Rain and wind storms can be hazards for the library.
- Biological agents (micro-organisms, insect or vermin infestation)
- Water (broken pipes, leaking roofs, blocked drains,)
- Explosions
- Liquid chemical spills
- Building deficiencies (structure, design, environment, maintenance)
- Books burn fairly slowly. Paper chars and crumbles when handled.
- Smoke and soot discolour books and get affected.
- Audio-visual materials can be completely destroyed or damaged beyond repair if not handled carefully.

Following safety measures can be adopted

- Regular checking of fire extinguisher
- Carry out a building inspection and alter factors which constitute a potential hazard.
- Establish routine housekeeping and maintenance measures to withstand disaster in buildings and surrounding areas.
- Install automatic fire detection and extinguishing systems, and water-sensing alarms.
- Make special precautions during unusual periods of increased risk, such as building renovation.
- Make special arrangements to ensure the safety of library or archival material when exhibited.
- Protect computers and data through provision of uninterrupted power supply.
- Have comprehensive insurance for the library or archives, its contents, the cost of salvage.



Chapter 07

Vehicle Safety

Vehicle Safety

Introduction

The topmost priority of the students, staff and faculties travelling by vehicle/ bus/ ambulance is to reach at the destination safe and secure. The first and the most important care taker of people reaching safe, rely on the drivers and the vehicle. Commonly speaking vehicles and people may get exposed to road accident due to two prime reasons one inadequate and inefficient driving skills of a driver and second the defective vehicles. Therefore the person concerned need to make sure that the drivers riding University Vehicle should be sufficiently equipped, efficient and having records of good driving experiences and the vehicle/ bus should be fit and well-functioning.

Road safety is the prevention and protection of road accidents by using all the road safety measures. It is to secure people while traveling on the roads. It is to make safe all the road users such as pedestrians, two-wheelers, four-wheelers, multi-wheelers, and other transport vehicle users. Practicing road safety/ Vehicle safety measures is very good and safe to all people all through the life. Everyone should respect others while driving or walking on the road and take care of their safety. People safety on the road is one of the most important aspects in order to avoid road side accidents, injury, and death.

Road accidents have become very common due to the vehicle collisions and ignorance of proper road safety measures. The number of death is increasing due to the motor vehicle collisions by the people ignoring road safety rules. All the roads have been busier for full day where vehicle are running in their high-speed. People in the modern world are being used to of their personal transportation so there is more traffic on the roads than ever before. In such condition, it needs people to follow traffic rules and road safety rules to practice safe driving in careful manner so that the road accidents can be reduced.

Each and every people like students, staff, faculties must do defensive driving courses (already service is available in the campus) before start driving on the roads. It is very important for road safety purposes. Everyone must know the trick to handle serious situations related to vehicles (how to operate vehicles) or themselves on the roads to save various accidents and lives. Road safety measures should be added in the course curricular of the University as an important subject so that students can get detail knowledge in their early age before driving. Most of the road accidents cases happened because of improper knowledge about operating vehicles and lack of proper road safety measures.

It is now becoming very unsafe to drive on the road day by day. Sometimes people use their personal vehicles for long time without regular maintenance and servicing, so it is very necessary to ensure vehicle's proper working condition with timely service. It not only increases the life of vehicles; reduces the number of accidents too. Driver should check the brake system

properly and well aware of the warning signs of failing brakes. There should always be first aid box, emergency tools, sufficient gasoline, and proper functioning vehicle before going to the trip.

There are various methods of creating awareness among common public such as seminars, workshops, students education by adding basic road-safety lessons to syllabus, make people aware about green cross code means stop, look, listen, think and then cross, learning of traffic lights, understanding of road signs, etc. Following all the road safety measures help a lot to protect all the road problems. Some effective measures of road safety are like basic awareness about vehicle, defensive driving according to weather and road conditions, use of vehicle lights and horn, wearing seat belt, well use of vehicle mirrors, avoid over-speeding, understanding road lights, maintaining distance of vehicle on road, proper understanding of handling crisis situation, telecast of awareness documentaries onTV, etc.

Hazards and Safety Measures

- Only authorized drivers are permitted to drive the University Vehicles to transport students, staff and faculties.
- The University Vehicles are restricted to take up authorized University related activities only.
- All drivers of the University owned must be 18 years and above with a valid driving licence.
- All drivers need to update with the road safety rules and regulation time to time.
- All vehicles need to be operated safely with the University and State owned rules and regulations.
- Sit belt should be used by the drivers and the passengers too.
- While driving vehicles maintain distance between yourself and the airbag. Sit at least 10 inches (25 cm) away from the steering wheel airbag. Sitting any closer than 10 inches puts you (or your passengers) at risk of making contact with the airbag while it's inflating.
- Drinking, possession of intoxicating beverages or illegal drugs in vehicles, or driving while under the influence of alcohol or drugs is prohibited.
- University Vehicles should be insured and renewal of insurance need to be done on regular basis. Insurance of the drivers, students, staff and faculties making regular journey by vehicles may be considered.
- Regular check-up and servicing of the vehicles are inevitable to check and control accident.
- The vehicles more than 10 years old or as per the rules of the transport department Govt. of Odisha need to be replaced with new ones in accordance with the safety of the passengers.
- University vehicles should not be used for personal purpose and in case of accident, damage of vehicle or physical injuries while accessing it for personal use, the University

will not be held responsible in any way.

- If a staff member uses his or her own vehicle for university business, he/ she must be aware that his or her own personal auto insurance will need to respond in the event of an accident, not the University's insurance.
- There must be a clear cut terms and condition, safety rules and regulation with the private vehicle owners whose resources have been hired or taken lease on regular basis.
- Everyone going on the road (especially drivers) must be to the left and let other vehicles pass on the opposite direction to pass.
- Drivers should be in slow speed while bending or turning on the roads.
- Take extra precaution while going on the over-crowded roads and road junctions.
- Bikers or people using two wheel vehicles must wear helmets of superior quality otherwise they should never go on the road without helmet.
- Speeds of the vehicles should be within the speed limit and slow especially in the areas of school, hospital, colony, etc.
- Every vehicle on the road should maintain the right distance among them to avoid collisions and accidents.
- Everyone using road should be well aware of the road signs and must follow rules.
- All the road safety rules and regulations must be in mind while travelling.



Chapter 08

Laboratory Safety

Laboratory Safety

Introduction

Laboratory is a place, where students get the practical knowledge about anything. But unfortunately, accidents may happen in these places. There are different hazards in the laboratory premises. Because of which the students, faculty and the staff will be affected. For those vulnerable people, we need a safety plan. So that they can follow the safety measures, and will be safe in their working place.

Possible Hazards

Hazard is a potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent future threats. Laboratory workers are exposed to numerous potential hazards including chemical, biological, physical and radioactive hazards, as well as, musculoskeletal stresses. Many workers are unaware of the potential hazards in their work environment, which makes them more vulnerable to injury.

Chemical Hazard

In the chemistry lab, there may occur different accidents to the people inside. Any chemical reaction may harm to the skin. If any chemical is open, and if it will come across any sensitive part of the body like eye, skin, hand, nose, etc. it will cause harm to it. The students may get injured.

Biological Hazard

In biological laboratories, there may occur some infection. If we touch the insects or plants in naked hands, then it will cause an infection. There may be some germs on the pipettes, any lab equipment that may cause health problem directly or indirectly. It include potential exposures to allergens, infectious zoonotic (animal diseases transmissible to humans), and experimental agents such as viral vectors. Allergens, ubiquitous in animal research facilities, are one of the most important health hazards, yet they are frequently overlooked.

Physical Hazard

Physical hazards are electrical safety hazards, ergonomic hazards associated with manual material handling and equipment use, handling sharps, and basic housekeeping issues. Noise is also a cause of physical hazard. By creating heavy noise in the lab, will create disturbance. It may lead to hearing loss, tinnitus (ringing in the ear), stress, anxiety, high blood pressure, gastrointestinal problems, and chronic fatigue.

Hazards in Computer Laboratory

In computer laboratories, there may occur some accidents to the students. The IT labs are always packed with lots of wires and electrical equipment's like AC and others. So there is chance of short circuit in the lab. Or else, if a connection is loose, the students may get a shock from it. Or else a major problem is, if any virus is there, then the total data may be lost from the computers.

Electrical Hazard

Electrical hazards are potentially life threatening and found much too frequently. First, equip all electrical power outlets in wet locations with ground-fault circuit interrupters. In electrical labs, the students may get shock because of working with high voltage. While working in the lab, if the equipment is plugged, and the in absent mind a student make any changes, it will lead to short circuit.

Mechanical Hazard

There are different hazards in the mechanical labs. While doing the welding work, the rays are very powerful. It may damage the eyes of the worker. While using the huge machineries, it may cause a physical injury to the students.

Safety Measures

All students must read and understand the information in this document with regard to laboratory safety and emergency procedures prior to the first laboratory session. For emergency purpose we need to take care of some issues like:

- It is the responsibility of all to read safety and fire alarm posters and follow the instructions during an emergency
- Know the location of the fire extinguisher, eye wash, and safety shower in lab and know how to use them.
- Notify instructor immediately after any injury, fire or explosion, or spill.
- Know the building evacuation procedures.

Electrical Safety

- Obtain permission before operating any high voltage equipment.
- Maintain an unobstructed access to all electrical panels.
- Wiring or other electrical modifications must be referred to the Electronics Shop or the Building Coordinator.
- Avoid using extension cords whenever possible. If you must use one, obtain a heavy-duty one that is electrically grounded, with its own fuse, and install it safely. Extension cords should not go under doors, across aisles, be hung from the ceiling, or plugged into other extension cords.
- Never, ever modify, attach or otherwise change any high voltage equipment.
- Always make sure all capacitors are discharged (using a grounded cable with an

insulating handle) before touching high voltage leads or the "inside" of any equipment even after it has been turned off. Capacitors can hold charge for many hours after the equipment has been turned off.

- When you are adjusting any high voltage equipment or a laser which is powered with a high voltage supply, USE ONLY ONE HAND. Your other hand is best placed in a pocket or behind your back. This procedure eliminates the possibility of an accident where high voltage current flows up one arm, through your chest, and down the other arm.

Mechanical Safety

- When using compressed air, use only approved nozzles and never directs the air towards any person.
- Guards on machinery must be in place during operation.
- Exercise care when working with or near hydraulically- or pneumatically-driven equipment. Sudden or unexpected motion can inflict serious injury.

Chemical Safety

- Treat every chemical as if it were hazardous.
- Make sure all chemicals are clearly and currently labelled with the substance name, concentration, date, and name of the individual responsible.
- Never return chemicals to reagent bottles. (Try for the correct amount and share any excess.)
- Comply with fire regulations concerning storage quantities, types of approved containers and cabinets, proper labelling, etc. If uncertain about regulations, contact the building coordinator.
- Use volatile and flammable compounds only in a fume hood. Procedures that produce aerosols should be performed in a hood to prevent inhalation of hazardous material.
- Never allow a solvent to come in contact with your skin. Always use gloves.
- Never "smell" a solvent!! Read the label on the solvent bottle to identify its contents.
- Dispose of waste and broken glassware in proper containers.
- Clean up spills immediately.
- Do not store food in laboratories.

Computer Safety

- Use proper wiring inside the laboratory.
- Use antivirus in all the computers.
- All the CPUs should be properly shut down before leaving the lab.



Chapter 09

Fire Safety

Fire Safety

Introduction

Fire represents one of the most severe hazards to which a structure may be subjected. Buildings fires not only result into deaths, injuries and property damages but may also cause huge property and economic losses. Fires may also cause environmental damages e.g. fire in a factory of chemicals etc. Fire is a dangerous event not only because it is not well understood due to its complex behaviour but also because it may be a primary or a secondary event caused by many other hazards such as earthquake, blast impact etc. Thus, fire can create severe life threatening situations and provision of appropriate fire safety measures in building design is of utmost importance.

Fire hazards and its causes like electric short circuiting, gas leakage, cylinder blast, candles, cigarettes, welding and its damaging effects are well understood by every individual and institution and many of the educational and non – educational institutions have well developed fire safety measures and action points.

Due to provisions of inadequate fire safety measures, every day, many fires occur in different parts of cities, town, villages which not only cause deaths, injuries, property and environmental damages but also result in closure of business and thus huge economic losses.

Fire safety is considered an expensive thing and wastage of money in many of the apartments, malls and academic institutions and virtually buildings are not designed for fire for the following reasons:

- Limited awareness of stakeholders
- Authorities think money spent on fire design is a wastage

There are three main components of fire safety i.e.

1. Preventive measures - aimed at preventing the causes of ignition,
2. Active measures e.g., sprinklers - aimed at controlling the spread and severity of fire.
3. Passive measures e.g., application of fire protection materials on beams and columns and using fire rated doors and walls to control the spread of the fire and delay/and prevent the collapse of the buildings.

Vulnerable groups for fire accidents

- The students, faculty, workers near the short circuit area are the vulnerable.
- The kitchen staff may be the vulnerable if there is a leakage of gas or there is a fire catch. A small fire at this stage may cause catastrophic effect on their lives.

- By not taking proper precaution during experiments with electrical gadgets may make the students vulnerable during their lab hours.
- The crop fields inside the campus are also vulnerable because a small fire can turn the whole crop field into ashes.
- The whole population inside the campus are also vulnerable during the festivals like Diwali due to the crackers. Especially near the powerhouse the crackers are extremely dangerous.

Fire Hazards and Safety Measures

- Electric short circuiting, gas leakage, cylinder blast, candles, cigarettes, welding and its damaging effects, ignited fire wood are the common causes of igniting fire and the concern authorities, persons and care takers need to be cautious enough handling these things.
- Fire Extinguishers of ISI mark of adequate capacity and numbers should be provided in all eye-catching spots in the kitchens, college buildings, class rooms and hostels.
- First Aid Kits need to be promoted among all students and faculties and the campus need to place it at some of the prominent points to meet out any eventuality.
- Emergency telephone numbers and list of persons to be contacted in case of any eventuality shall be displayed on the notice board and other prominent places in the college premises.
- Mock drills need to be conducted regularly with the support of Fire Extinguisher, Govt. of Odisha.
- Wherever possible fire alarm may be provided in those areas which have large infrastructure and science laboratories, IT and mechanical rooms.
- All electrical wiring and equipment need to be got inspected and if found defective need to be replaced with ISI mark equipment.
- The college need to avoid High Tension Lines going through the college campus.
- Fire fighting training with the collaboration of Fire Station, ODRAF, NDRAF need to be facilitated to the line functionaries, students and staff time to time.
- Training to handle fire safety equipment, emergency evacuation and protection in the event of fire and any other emergency would be arranged to be imparted through the Fire & Emergency Wing or any other agency as decided by the college concern authority.
- Fire Safety Day need to be observed every year on 14th April with awareness programs and fire safety drills in collaboration with the Fire & Emergency Wing or any other agency as decided by the authority.
- Special lectures on Safety Awareness will be conducted from time to time.
- Kitchen and other activities involving use of fire should be carried out in a secure and safe location away from the main building.

- In case cooking food with firewood, the kitchen staff need to wear mask and gloves so as to protect them from smoke and fire.
- The accumulation of combustible materials (such as cardboard boxes, magazines, and paper products) is prohibited.
- Flammable material must not be stored any closer than 36" from a heating appliance or electrical light.
- Properly dispose of items no longer in use
- Scrap, waste materials, dust, trash when these items are allowed to accumulate, the risk of fire is increased.
- Under the right conditions, the buildup of dust from wood, plastic, or certain metal operations can lead to a fire or explosion thus these things should either be burnt in an open space or dump in waste pit.
- Extension cords and multiple plug adapters may only be used for temporary operations.
- Overloaded circuits, damaged wiring, and defective switches and outlets can all lead to electrical fires. Therefore regular inspection and replacement of damaged wires and defective switches with new ones will be safe.
- Placing space heaters near, or in contact with, combustible materials poses a fire hazard.
- Small portable fans can pose a fire hazard if they are placed near combustible materials, or where the blades of the fan can easily catch items.
- Damaged wiring on portable fans and mounting portable fans in walls also increase your fire risk.
- Machines that are not lubricated properly can overheat and start a fire.
- Electrical problems and equipment defects can lead to a fire.
- During summer seasons, the campus will have enormous amount of dry leaf, there may be the possibility of fire attack and that may destroy all other living plants and trees. Therefore dry leaf need to be collected regularly and put them into the compost pit.
- Kitchen fires from unattended cooking, such as frying, broiling, and simmering
- Electrical Systems that are overloaded, resulting in hot wiring or connections, or failed components.
- Combustible storage areas with insufficient protection
- Combustibles near equipment that generates heat, flame, or sparks
- Candles and other open flames
- Smoking (Cigarettes, cigars, pipes, lighters, etc.)
- Equipment that generates heat and utilizes combustible materials
- Flammable liquids and aerosols

- Flammable solvents (and rags soaked with solvent) placed in enclosed trash cans
- Fireplace chimneys not properly or regularly cleaned
- Cooking appliances - stoves, ovens
- Heating appliances - fireplaces, wood burning stoves, furnaces, boilers, portable heaters
- Household appliances - clothes dryers, curling irons, hair dryers, refrigerators, freezers
- Chimneys that concentrate creosote.
- Electrical wiring in poor condition
- Leaking Batteries
- Personal ignition sources - matches, lighters
- Electronic and electrical equipment
- Exterior cooking equipment - barbecue
- The electricians while preparing some electrical equipment should wear the rubber gloves and must not be in bare feet.
- The live wires should be coated properly with insulating material to prevent any hazard.
- Smoking prohibition is a must in work area.
- Fire extinguishers should be kept at many spots for easy access during peak hours.
- Fire alarms should be present in the campus.
- CCTV cameras should be installed in the fire prone sections.



Chapter 10

Workplace Violence

Workplace Violence

Introduction

Workplace violence is violence or the threat of violence against workers, staff, faculties and students. It can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths, conflict or ragging. However it manifests itself, workplace violence is a growing concern for employers, authorities and employees and students nationwide.

The best protection employers can offer is to establish a zero-tolerance policy toward workplace violence against or by their employees and students.

The employer should establish a workplace violence prevention program or incorporate the information into an existing accident prevention program, employee handbook, or manual of standard operating procedures. It is critical to ensure that all employees and students know the policy and understand that all claims of workplace violence will be investigated and take action promptly. In addition, employers can offer additional protections such as the following Provide safety education for employees so they know what conduct is not acceptable what to do if they witness or are subjected to workplace violence, and how to protect themselves. There is also a disciplinary committee existing to solve any matters related to violence and also to look after students' problem. Weekly and Surprise room checking with alcohol detectors are going on inside the campus and Management also takes care of needs of faculties and full disciplinary administration goes on.



In this modern era, the most workplace violence takes place in educational institutions is due to the Ragging cases and Sexual Harassments cases. According to an article in newspaper Centurion University is one among the ranked Universities which has sexual harassment cases and these two are the potential threat of work place violence.

Ragging is a common word linked with Engineering Institutions, but Centurion University has been committed to making all the campus a zero RAGGING and zero TOLERANCE campus as we can clearly see it through the awareness boards for no ragging and no sexual harassment with the emergency contacts number given on it.

Possible Hazards

- Consumption of alcohol, Smoking Cigarettes, tobacco and drugs may consume by students and staff in and outside the campus may create unnecessary conflict among the students and staff.
- Passing comments on girls, women workers and faculties may lead to psychological and physical violence.
- Less payment of remuneration/ wage to the staff and workers and not getting on time may lead to discontentment among the employees.
- Over Competitions among the students and faculties.
- Excessive work neither i.e. engaging some employees to work more than 8 hours and not remunerated extra nor compensated.
- Not getting the proper working hours.
- Lack of filial relationship among the students and faculties may lead to disruption of healthy environment in the campus.
- Expectations of the college authorities and parents on teaching and learning process are not fulfilled.
- Unhealthy or pre mature relationship among boys and girls may lead to the life of psychological trauma and much gets affected in the study destructively.

Safety Measures

Nothing can guarantee that an employee will not become a victim of workplace violence. These steps, however, can help reduce the odds:

- Learn how to recognize, avoid, or diffuse potentially violent situations by attending personal safety training programs.
- Alert supervisors to any concerns about safety or security and report all incidents immediately in writing.
- Avoid travelling alone into unfamiliar locations or situations whenever possible.
- Carry only minimal money and required identification into community settings.
- Encourage employees to report and log all incidents and threats of workplace violence.
- Provide prompt medical evaluation and treatment after the incident.
- Report violent incidents to the local police promptly.
- Inform victims of their legal right to prosecute perpetrators.
- Discuss the circumstances of the incident with staff members. Encourage employees to share information about ways to avoid similar situations in the future.
- Offer stress debriefing sessions and posttraumatic counselling services to help workers recover from a violent incident.

- Secure the workplace. Where appropriate to the business, install video surveillance, extra lighting, and alarm systems and minimize access by outsiders through identification badges, electronic keys, and guards.
- Provide drop safes to limit the amount of cash on hand. Keep a minimal amount of cash in registers during evenings and late night hours.
- Equip field staff with cellular phones and hand-held alarms or noise devices, and require them to prepare a daily work plan and keep a contact person informed of their location throughout the day. Keep employer provided vehicles properly maintained.
- Instruct employees not to enter any location where they feel unsafe. Introduce a “buddy system” or provide an escort service or police assistance in potentially dangerous situations or at night.
- Develop policies and procedures covering visits by home health-care providers. Address the conduct of home visits, the presence of others in the home during visits, and the worker's right to refuse to provide services in a clearly hazardous situation.
- Investigate all violent incidents and threats, monitor trends in violent incidents by type or circumstance, and institute corrective actions.
- Discuss changes in the program during regular employee meetings.



Chapter 11

Severe Weathers

Severe Weathers

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. Types of severe weather phenomena vary, depending on the latitude, altitude, topography, and atmospheric conditions. They are:

- Heat wave
- Flash flood
- Storms
- Hail stone
- Thunder and lightning

Heat Wave:

A heat wave is a prolonged period of excessively hot weather, which may be accompanied by high humidity, especially in oceanic climate countries. Heat waves can cause droughts, which can lead to wildfires and crop failures, as well as affect energy production.

- Heat waves are most common in summer when high pressure develops across an area. High pressure systems move slowly and can remain in the same area for days or even weeks. As climate change causes temperatures to rise, this will also cause the average temperature for a given type of weather to rise.
- We have also observed that nights are warming faster than days. This is a fingerprint of human-caused global warming that is consistent with the greenhouse effect. With a stronger greenhouse effect, less of the Earth's heat radiation can escape to space at night, meaning that there is less chance for the air to cool down.
- During heat waves, a lack of wind causes heat to become trapped close to the ground. As the temperature raises, people, animals and plants can experience heat stress. Heat stress results when pressure is put on the body's normal cooling process: too much heat is absorbed and not enough is lost. When someone is not able to cool down, their body temperature rises, their breathing quickens and their pulse increases. As their body gets hotter, water is lost from their blood causing it to thicken. This may lead to heat stroke. Plants and crops are also affected by severe heat. When the temperature is high for a long time, plants lose moisture and can die.
- Increase your fluid intake regardless of your activity level. During heavy exercise in hot weather, drink 2-4 glasses (16-32 ounces) of cool fluids each hour. The best way to replace salt and minerals is to drink fruit juice or a sports beverage during exercise or any work in the heat. Do not take salt tablets unless directed by your doctor.

- Wear as little clothing as possible when you are at home. Choose lightweight, light-coloured, loose-fitting clothing. In the hot sun, a wide-brimmed hat will keep the head cool. If you must be out in the heat, plan your activities so that you are outdoors either before noon or in the evening. While outdoors, rest frequently in a shady area. Avoid hot foods and heavy meals; they add heat to your body.
- Do not leave infants, children, or pets in a parked car. Bring your pets indoors with you to protect them. Dress infants and young children in cool, loose clothing and shade their heads and faces with hats or an umbrella. Limit sun exposure during the midday hours and in places of potential severe exposure, such as beaches.

Flash Flood:

A flash flood is a rapid flooding of geomorphic low-lying areas: washes, rivers, dry lakes and basins. It may be caused by heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or melt water from ice or snow flowing over ice sheets or snowfields.

- JITM campus is situated at the feet of the mountain. In case of heavy and incessant rain in the periphery, there may be occurrence of flash flood as the rain water flushes so rapidly and instantly without the knowledge of the campus inmates. These instant flushes may cause damage of assets, properties and other invaluable. With flash flooding there is often very little time between the rain falling and flash flooding occurring. Flash flooding also commonly happens more where rivers are narrow and steep, so they flow more quickly. It can also occur away from small rivers in built-up urban areas where hard surfaces such as roads and concrete don't let the water drain away into the ground.
- Elevate the furnace, water heater, and electric panel if susceptible to flooding. Install check valves in sewer traps to prevent flood water from backing up into your living rooms/ halls/ library etc. Seal walls in basements with waterproofing compounds to avoid seepage. Keep an adequate supply of food, candles and drinking water in case you are trapped inside your living rooms. Listen to designated radio/TV emergency alert systems for emergency instructions. Secure/bring in outdoor furniture or other items that might float away and become a potential hazard. Move valuable items and papers/documents to upper floors.
- Seek higher ground. Do not wait for instructions. Be aware of flash flood areas such as canals, streams, drainage channels. Be ready to evacuate. If instructed, turn off utilities at main switches and unplug appliances - do not touch electrical equipment if wet. If you must leave your home, do not walk through moving water. Use a stick to test depth. Stay away from flood water - do not attempt to swim, walk or drive through the area. Be aware of areas where water has receded. Roadways may have weakened and could collapse. Do not drink tap water until advised by the Health Unit that the water is safe to drink.

Storms :

A storm is any disturbed state of an environment or astronomical body's atmosphere especially affecting its surface, and strongly implying severe weather.

should stop and take cover during a hailstorm. Hailstones can dent the roof of the car and damage the windscreen. So pull over and be safe inside your car.

- Hail falls at fast speeds, and it can cause injury to those in its path. Therefore people riding two wheelers are often much more exposed to the bad weather and damage from the piercing hailstones than those with four wheelers. Bikers should remember to wear some extra protective layer of jackets and hand gloves to prevent injury.
- Though farmers are being educated nowadays about crop insurance which can help in case of inclement weather, preparing for an adverse situation beforehand can save a lot of hassle. And as they always say, prevention is better than cure. Be it crops or your own private small garden; always cover them with a tarp.
- Be weather wise! Don't forget to bring small kids and your pets or cattle inside, as they are more susceptible and vulnerable to injury. Do not underestimate the intensity of the hailstorm. Even if the local weather agency forecasts hailstorms that are not so intense, make sure to keep the cars parked under cover in the garage.

Thunder and Lightning:

Thunder is the sound that accompanies lightning during a thunderstorm. Lightning is a bright flash of electricity produced by a thunderstorm.

- Lightning is an electric current. Within a thundercloud way up in the sky, many small bits of ice (frozen raindrops) bump into each other as they move around in the air. All of those collisions create an electric charge. After a while, the whole cloud fills up with electrical charges. The positive charges or protons form at the top of the cloud and the negative charges or electrons form at the bottom of the cloud. Since opposites attract, that causes a positive charge to build up on the ground beneath the cloud. The ground's electrical charge concentrates around anything that sticks up, such as mountains, people, or single trees.
- Thunder is caused by lightning. When a lightning bolt travels from the cloud to the ground it actually opens up a little hole in the air, called a channel. Once then light is gone the air collapses back in and creates a sound wave that we hear as thunder. The reason we see lightning before we hear thunder is because light travels faster than sound.
- Avoid contact with corded phones and devices including those plugged into electric for recharging. Cordless and wireless phones not connected to wall outlets are OK to use. Avoid contact with electrical equipment or cords. Unplug appliances and other electrical items such as computers and turn off air conditioners. Power surges from lightning can cause serious damage.
- Avoid contact with plumbing. Do not wash your hands, do not take a shower, do not wash dishes, and do not do laundry. Plumbing and bathroom fixtures can conduct electricity. Stay away from windows and doors, and stay off porches. Do not lie on concrete floors and do not lean against concrete walls. Avoid natural lightning rods such as a tall, isolated tree in an open area.

- The campus may also be threat to strong storms all around especially during summer and monsoon. As the campus is filled with trees, plants, orchards, flower and fauna in case of storm many of these trees and plants may fall, power may get disrupted due to breakage of wires and poles.
- Stay away from downed wires as they may be live with electricity. Check in on vulnerable neighbours who may need assistance without power.
- In case of power off, never use a generator indoors. The primary hazards to avoid are carbon monoxide (CO) poisoning from the toxic engine exhaust, electric shock or electrocution and fire. As a safety precaution before leaving the house on vacation, unplug all electrical appliances except for those lights connected to automatic timers. If you live in a storm-prone area, nail down roof shingles or use adequate adhesive to keep them from blowing off in a violent wind.
- Keep an eye on large trees. Postpone outdoor activities. Although you may be injured if lightning strikes your car, you are much safer inside a vehicle than outside.
- However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal. Secure outdoor objects that could blow away or cause damage. Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades, or curtains. Avoid showering or bathing. Plumbing and bathroom fixtures can conduct electricity. Use a corded telephone only for emergencies. Cordless and cellular telephones are safe to use.

Hail Stone :

Hail is a form of precipitation that falls from the sky as pellets of ice. The pellets can range in size from small pea-sized pellets, to hailstones as large as grapefruits. Hail is especially damaging to crops.

- Hail forms as a result of the strong updrafts common in severe weather systems. When a strong convective cell forms, warm air rises and cool air sinks. If there is a sufficient amount of super cooled water, accumulation of ice can begin in the clouds.
- Rising air will often reach a point in the atmosphere that is below freezing (hence, ice will form). The ice is suspended in the air by the strong updrafts and will later fall back down. This process will occur over and over adding layer upon layer to the hailstone. If you cut a hailstone in half, you would see alternating concentric layers inside it. As the hail falls, it may melt to varying degrees only to be picked up again and carried high into the atmosphere to re-freeze.
- Eventually the mass of the hailstone increases to the point that the force of gravitational pull exceeds the force of the updraft and the stone falls to the surface. Falling rain and hail create a downdraft of cold air as they move downward. Hailstones may vary in size from a pea to an orange, or in some rare instances even larger. On the plains just east of the Rocky Mountains, 1/2 to 3/4 inch diameter hailstones are common.
- During a hailstorm, avoid stepping out to see it since hailstones are not the only thing that can injure, hailstorms are often accompanied by violent lightning. Those on the road

- Avoid hilltops, open fields, the beach or a boat on the water. Take shelter in a sturdy building. Avoid isolated sheds or other small structures in open areas. Avoid contact with anything metal—tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles. If you are driving, try to safely exit the roadway and park. The best way to avoid injury from a lightning storm is to avoid it completely.
- Make your plans with dangerous weather in mind. Listen to the local weather forecast, and pay special attention to thunderstorm advisories. Research the local climate: in some areas you can almost guarantee a thunderstorm on summer afternoons. Schedule your activities to avoid many high-risk situations.



Chapter 12

College Safety

College Safety

A) What are the possible hazards prevailing or may prevail in and outside of the campus?

- Threat of Snakes & scorpions bite.
- Inmates riding motor bikes without safety measures
- Dog bites
- Lack of emergency exit doors in hostels
- Lack of safety measures in labs of different departments
- Water leakage & cracks in walls due to improper construction
- Extreme hot during summer & shortage of water make situation worse.
- Poor drainage system
- Risk of life due to lack of safety measures while playing
- Unavailability of proper first aid boxes
- Insufficient emergency facilities in the college dispensary.
- Students playing cricket in ground without any safety equipment.
- Consuming unhygienic snacks and drinking unsafe water at the road side.

B) What are or may be the obstacles for promoting better working condition?

- Time restriction for using library facility
- Slow internet service
- Inadequate sanitation facility in the campus
- Limited quarters for the faculties in the campus
- Poor safety precautions for labourers working in farm and off farm sectors.
- Intake of alcoholism and drugs by inmates may lead to many types of unpleasant situations.
- Inadequate arrangement of projectors and systems in the class rooms.
- In summer due to increased power cut students are unable to concentrate on studies and other activities.

C) What are the college resources? Do you think resources are well utilized? Do you think resources are not properly maintained? Which are those resources and why are they not maintained well?

- Agriculture land, vehicles, gym, post office, dispensary, different machines such as transformer Wi-Fi and generators
- Class rooms, hostels (boys & girls), administrative buildings, staff and faculties chambers, seminar halls, Training hall, quarters, MDC, laboratories, dining halls, kitchen, temple, guest house etc.
- Varieties of trees & plants.
- Fruit bearing trees and plants.
- Water resources, pond.
- Tribal village
- Play grounds (basketball, Tennis, cricket, football, volleyball).

Well utilized Resources

- Library, class rooms, hostels, chambers, seminar halls, gyms, play grounds, quarters, MDC.
- Water
- Electricity
- Human resources
- Land & labor
- Labs (Machinery)

Unutilized Resources

- Throwing of waste food and others (which can be turned into biogas for cooking or organic manure)
- Playground need to developed well
- Improper maintenance of quarters
- Some class rooms and activity centres remain unutilized.
- Some of the instruments in the labs are very old and remain unutilized.
- Washroom facility is somewhat unhygienic.
- Drains remain unclean leads to dirty smell.

D) Do you think enough safety measures are not taken in the class room, place of stay, place of work etc.?

- Workers may get snake bite while working in gardens & fields
- Students get disturbed due to noise in the library

- Improper maintenance of electrical appliances which may lead to fatal injuries.
- Un insulated power lines in laboratories and heavy lath machines can cause fatal injuries.
- Students don't use enough protective measures while playing and doing exercises in gym.
- Inadequate safety precautions in the hostels and surrounding may be victims of snakes and small insects.
- A lady instructor in lady's gym would be helpful for the girls to avoid any kind of injuries.
- Electrical laboratories needs to have enough safety measures to protect students and faculties from any kind of electric shocks
- Insufficient FirstAid boxes in the classrooms and laboratories
- Inadequate individual safety equipment in labs and play grounds

My safety Plan on day today Basis

- I will carry my cell phone and important telephone numbers with me at all times.
- I will keep in touch with someone I trust about where I am or what I am doing.
- I will stay out of isolated places and try to never walk around alone.
- If possible, I will alert dorm or campus security about what is happening in my relationship so that my abuser is not allowed in my building/ room.
- I will avoid places where my abuser or his/her friends and family are likely to be.
- I will keep the doors and windows locked where I live, especially if I am alone.
- I will avoid speaking to my abuser. If it is unavoidable, I will make sure there are people around in case the situation becomes dangerous.
- I will call help desk if I feel my safety is at risk.
- I can look into getting a protective order so that I'll have legal support in keeping my abuser away.
- I can see if there are any self-defence classes available at my college or university.
- I will remember that the abuse is not my fault and that I deserve a safe and healthy relationship.

- I will ask my friends to keep their cell phones with them while they are with me in case we get separated and I need help.
- I will avoid going out alone, especially at night.
- No matter where I go, I will be aware of how to leave safely in case of an emergency.
- I will leave if I feel uncomfortable in a situation, no matter what my friends are doing.
- I should not drink alcohol neither chew tobacco and other intoxicating stuff,
- I will spend time with people who make me feel safe, supported and good about myself.
- I will use all possible individual safety equipment as and when required.

- I will not say or do anything online that I wouldn't in person.
- I will set all my online profiles to be as private as they can be.
- I will save and keep track of any abusive, threatening or harassing comments, posts, or texts.
- I will never give my password to anyone.
- If the abuse and harassment does not stop, I will change my usernames, email addresses, and/or cell phone number.
- I will not answer calls from unknown, blocked or private numbers.
- I can see if my phone company can block my abuser's phone number from calling my phone.
- I will not communicate with my abuser using any type of technology if unnecessary, since any form of communication can be recorded and possibly used against me in the future



Chapter 13

Definitions

Definitions

Accident

An event that (a) causes any person to be harmed; or (b) in different circumstances, might have caused any person to be harmed

Accident Register

A book for recording serious and non-serious harm in the workplace.

Contractor

A person engaged by any person (other than as an employee) to do any work for gain or reward.

Employee

A person of any age employed by an employer to do any work (other than residential work) for hire or reward under a contract of service and, in relation to any employer, means an employee of the employer.

Employer

A person who employs another person to do any work for hire or reward.

Harm

Illness, injury, or both; and (b) includes physical or mental harm caused by work-related stress.

Hazard

An activity, arrangement, circumstance, event, occurrence, phenomenon, process, situation or substance (whether arising or caused within or outside a place of work) that is an actual or potential cause or source of harm; and (b) includes (i) a situation where a person's behaviour may be an actual or potential cause or source of harm to the person or another person; and (ii) without limitation, a situation described in subparagraph (i) resulting from physical or mental fatigue, drugs, alcohol, traumatic shock or another temporary condition that affects a person's behaviour. Hazardous has a corresponding meaning [HSE Act].

Hazard/Risk Assessment

The overall process of determining whether a hazard is significant.

Hazard Identification

The process of recognising that a hazard exists and defining its characteristics.

Hazard Management

A system for identifying hazards to employees at work, assessing hazards, and managing hazards so that people are not harmed. Hazard management involves: (a) elimination (removing the hazard completely); (b) isolation (putting a barrier or distance between the hazard and the person); or (c) minimisation (minimising the chance that it will cause harm).

Hazardous Substance

- Explosiveness
- Flammability
- A capacity to oxidise
- Corrosiveness
- Toxicity (including chronic toxicity)
- Which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any one or more of the properties specified in paragraph (a) of this definition.

Health and safety Representative

An employee elected, as an individual or as a member of a health and safety committee or both, to represent the views of employees in relation to health and safety at work.

Health Monitoring

May involve biological, chemical and physical monitoring of the exposure of an individual and the work environment to determine the immediate and future health impacts of the exposure. Examples of health monitoring include:

- Monitoring employees in a battery plant for lead concentration in their blood
- Monitoring employees in an aluminium smelter for fluoride concentration in their urine
- Monitoring the levels of sulphur dioxide (a poisonous gas) in a smelter.

Induction

The process by which new employees are introduced to :

- The organisation's structure, roles and personnel performing them
- Rules and policies, responsibilities and expected standards of behaviour
- Terms of employment and benefits
- Training and supervision arrangements
- Standard procedures (including emergency evacuation)
- Any workplace programmes (including the safety programme).
- It should take place before a new employee does any work in their specific job.

Assessment

A formal process to identify all the factors that have contributed to an incident or injury. The process should be a fact-finding exercise, not a fault-finding exercise. Ideally the process should also document all of the consequences of the incident or injury, for example:

The outcome of an assessment should include recommendations for corrective actions, when they need to be implemented, and by whom.

Personal protective Equipment (PPE)

Any item of clothing (e.g. steel-capped safety boots, high-visibility vests) or equipment (e.g. hard hats, earmuffs) worn or used by an employee that is approved and specifically designed to provide protection from work hazards such as noise or a type of harm such as crush injuries.

Procedure

A process or series of steps that is clearly documented in hard copy text format, electronic text format, or a series of hard copy or electronic flowcharts, diagrams, picture-form representations or similar, or any combination of these.

Safe work Procedures

A set of instructions for a job, process or machine that when correctly followed will provide optimum safety to the employee.

Senior Management

The management level within the academic institute that reports directly to the Core Management

Serious Harm

- Death.
- Any of the following conditions that amounts to or results in permanent loss of bodily function or temporary severe loss of bodily function: respiratory disease, noise-induced hearing loss, neurological disease, cancer, dermatological disease, communicable disease, musculoskeletal disease, illness caused by exposure to infected material, decompression sickness, poisoning, vision impairment, chemical or hot-metal burn of eye, penetrating wound of eye, bone fracture, laceration, crushing.
- Amputation of a body part.
- Burns requiring referral to a specialist registered medical practitioner or specialist outpatient clinic.
- Loss of consciousness from lack of oxygen.
- Loss of consciousness or acute illness requiring treatment by a registered medical practitioner, from absorption, inhalation or ingestion of any substance.
- Any harm that causes the person harmed to be hospitalised for a period of 48 hours or more commencing within seven days of the harm's occurrence.

Significant Hazard

A hazard that is an actual or potential cause or source of:

- Serious harm; or
- Harm (being harm that is more than trivial), the severity of whose effects on any person depends (entirely or among other things) on the extent or frequency of the person's exposure to the hazard; or
- Harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard.



List of Students & Faculty

Students of Disaster Management, 8th Semester

Sl. No.	Name of the Students	Registration No.
1	Shital Prasanna Panda	120101CER023
2	Diptimayee Parida	120101CER024
3	Kishori Muduli	120101CER039
4	Prajnaya Paramita Parida	120101CER040
5	Srutisha Panda	120101CER049
6	Subhangi Subhadarsani Sahu	120101CSR006
7	Shweta Patnaik	120101CSR014
8	Saparapu Dinesh Kumar	120101ECR006
9	Ranjit Kumar Padhi	120101ECR031
10	Sumit Sagar Panda	120101ECR034
11	Ansuman Pattanayak	120101ECR037
12	Payal Choudhury	120101ECR040
13	Monika Padhi	120101ECR045
14	Priyanka Panigrahi	120101ECR049
15	Sirshak Mahapatra	120101EER001
16	Trilochan Sahu	120101EER004
17	Sourav Patra	120101EER015
18	S Hari Shankar	120101EER017
19	Jagannath Sahu	120101EER020
20	Dibya Ranjan Das	120101EER021
21	Gouri Shankar Das	120101EER022
22	Siba Sankar Pradhan	12701CER012
23	Rana Pratap Sethi	12701EEL001

1	Subrat Dash	Faculty Cum Guide
2	Jaya Krishna Behera	Faculty

Students of Disaster Management, 6th Semester

Sl. No.	Name of the Students	Registration No.
1	Santi Swarup Pradhan	130101CER002
2	Vivek Kumar	130101CER003
3	Pallavee Bharti	130101CER009
4	Abhishek Kumar Roy	130101CER018
5	Sudesh Kumar Pippali	130101CER019
6	Rajesh Biswas	130101CER020
7	Bevara Kumara Swamy	130101CER022
8	Shasanka Sekhar Barik	130101CER024
9	Anshuman Palo	130101CER028
10	Siba Sankar Behera	130101CER029
11	Patiwada Revati	130101CER030
12	Kunal Singh	130101CER032
13	Janison Jani	130101CER034
14	Swaraj Kumar Patra	130101CER035
15	Subhadarshani Satapathy	130101CER036
16	Srungaram Venkata Ranga Gayatri	130101CER045
17	Rakesh Kumar Pallai	130101CER047
18	Routhu Sunil Kumar	130101ECR002
19	Subhasri Tripathy	130101ECR009
20	Gayatri Bala Paikray	130101ECR022
21	Aman Achalrya	130101MER090
22	S.. Manoj	130101MER091
23	Kumar Subhrajit Swain	130101CER007
24	Soumya Satpathy	130101ECR004
25	Reena Hembrom	1301CER023
26	Shaswat Patra	130101ECR003
27	Sachin Kumar Turi	130101MEL102
28	Sai Swagat Das	130101ECR012

Reference

Reference

Chemical Hygiene Standard

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10107&p_text_version=FALSE

Electrical Safety Related Work Practices

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9909&p_text_version=FALSE

Hazard Communication

<http://www.osha.gov/SLTC/hazardcommunications/index.html>

Hazardous Waste Operations & Emergency Response

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765&p_text_version=FALSE

Hearing Protection

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9735&p_text_version=FALSE

Personal Protective Equipment (PPE)

<http://www.osha.gov/SLTC/personalprotectiveequipment/index.html>

Portable Fire Extinguishers

http://www.osha.gov/SLTC/evacuation_etoold/portable_required.html

Respiratory Protection (compliance with this standard is Coordinated by the Asbestos abatement/lead management shop in Physical Plant)

http://www.osha.gov/SLTC/respiratory_advisor/oshfiles/otherdocs.html

Risk Management Policies and Procedures are located on the web at:

<http://www.uvm.edu/~riskmgmt/>

Specific policies listed on UVM's Policies, Procedures & Guidelines Page are listed below:

Automobile Accident Claim Procedures

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/Autoacc.htm>

Automobile Rental Policy & Procedures

<http://www.uvm.edu/~uvmppg/ppg/travel/autorent.htm>

Chemical Hygiene Plan

<http://esf.uvm.edu/uvmchp/uvmchp.html>

Driver Safety Rules

http://www.uvm.edu/~uvmppg/ppg/riskmgm/driver_safety.htm

Emergency Response and Recovery Plan

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/emeresp.htm>

Environmental Health & Safety Policy Document

<http://esf.uvm.edu/uvmehspolicy/index.html>

Environmental Management Plan

<http://esf.uvm.edu/uvmemp/empoverview.html>

Fire Safety

<http://www.uvm.edu/~uvmppg/ppg/student/fire.html>

General University Insurance Protection Policy

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/genins.htm>

Guidelines for Commercial Drivers Concerning Alcohol and Substance Abuse

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/comdriver.htm>

Hazardous Waste Tag Procedures

<http://esf.uvm.edu/uvmemp/procedures/05wastemang.html>

Indemnification Policy for Officers and Employees

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/indem.htm>

Property Damage Claims Procedures for UVM-owned property

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/propdam.htm>

Travel Accident Insurance Policy

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/accins.htm>

Workers' Compensation Claim Filing Guide

<http://www.uvm.edu/~uvmppg/ppg/riskmgm/workcomp.htm>



