





كليات التقنية العليا
HIGHER COLLEGES OF TECHNOLOGY

Environment, Health and Safety Management System

Risk Management Procedure

	EHSMS Operational Procedure	Doc. No.:	HCT/EHS/SP-004
	Risk Management	Rev. No.:	2.0
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Revision History				
Version No.	Date of revision & issue	Description of Changes	Pages Affected	Issued By
1.0	Feb/2018	Adding relevant terms & Definitions.	4&5	
1.0	Feb/2018	Replacing the Health and Safety Sr. Officer with Health and Safety Specialist/In-Charge.	All	
1.0	Feb/2018	Adding the responsibilities of Health and Safety Specialist/In-Charge & Department Heads.	6&7	
1.0	Feb/2018	Adding the requirements of having the required understanding of assessed activities and risk assessment process and methodology in addition to provision of required training.	8	
2.0	Feb/2019	Adding “What can be damaged” and “How”	10	
2.0	Feb/2019	Replacing “Severity” of hazards with “Consequences” of hazards.	All	
2.0	Feb/2019	Modifying consequences for Human Health and Safety for score (4) from “Multiple Injuries” to “Single Fatality” in accordance with OSHAD-SF-Technical Guideline – Process of Risk Management – Version 3.0.	14	
2.0	Feb/2019	Modifying consequences for Human Health and Safety for score (5) from “Single/Multiple Fatalities” to “Multiple Fatalities” in accordance with OSHAD-SF-Technical Guideline – Process of Risk Management – Version 3.0.	14	
2.0	Feb/2019	Adding “Risk Register” form, “Hazard Walkthrough” form and “Specific Risk Assessment” form.	16	

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1. PURPOSE

The purpose of this procedure is to establish, implement and maintain a system to identify, assess and control environmental, health and safety hazards and risks associated with all activities, processes, materials, equipment, facilities, all phases of a project, services and infrastructure in HCT at HCT to ensure that it remains at acceptable level at all times.


This procedure provides additional information to assist HCT to comply with the requirements of OSHAD SF-Element 2.0 Risk Management Version 3.1 – March 2017 and OSHAD-SF-Technical Guideline – Process of Risk Management – Version 3.0 – 1st July 2016.

2. SCOPE

This procedure is applicable to all activities, processes, materials, equipment, facilities, all phases of a project, services and infrastructure in HCT, which poses or may pose an environmental, health and safety hazard or may become a cause of EHS risk.

3. TERMS & DEFINITIONS

HCT	:	Higher Colleges of Technology.
CS	:	Central Services.
EHS	:	Environment, Health and Safety.
OSHAD	:	Abu Dhabi Occupational Safety & Health Center.
ISO	:	International organization for standardization.
OHSAS	:	Occupational Health and Safety Assessment Series.
Hazard	:	Any substance, physical effect or condition with the potential to harm people or property.
Hazard Identification	:	The process of recognizing that a hazard exists and defining its characteristics. A hazard may be a work activity or a work area.
Risk	:	The likelihood and the consequences of a potential injury, loss or harm to occur.
ALARP	:	As Low As Reasonably Practicable.
As Low As Reasonably Practicable	:	The ALARB principle is to reduce the risk through the Hierarchy of Control to a level which is as low as reasonably practicable and involves balancing reduction in risk against the time, trouble, difficulty and costs of achieving it. This level represents the point, objectively assessed at which the time, trouble, difficult and cost of further reduction measures becomes

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unreasonably disproportionate to the additional risk reduction obtained. The remaining risk is called “residual risk”.


- Residual Risk** : The level or risk remaining after all relevant control measures have been applied.
- Hierarchy of Control** : A Hierarchy of Control is required to eliminate or manage the risks to an ALARP level. The Hierarchy of Control is listed in this procedure in their order of effectiveness and is divided into Occupational Health and Safety Control Hierarchy and Environmental Aspects Control Hierarchy.
- Risk Control** : The part of the risk assessment which involves the implementation of policies, procedures and standards or physical changes to eliminate or minimize the adverse risks.
- Risk Assessment** : A systematic examination of all aspects of the work to be undertaken in order to consider what could cause harm to the environment, people (employees, visitors, contractors and so on). Following a risk assessment, decisions can be made on the practical actions needed to prevent any problems arising.
- Risk Register** : A list of hazards, associated risks (pre and post control) and selected control measures as per the Hierarchy of Control to reduce the risks to ALARP level.
- Environment** : Surroundings in which an organization operates including air, water, land, natural resources flora, fauna, humans and their interrelation.
- Environmental Aspect** : Elements of an organization's activities, products or services that can interact, influence and impact the environment.
- Environmental Impact** : Any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organization's activities, products or services.

4. TRAINING AND COMPETENCY:

Those carrying out risk assessments should be competent to do so and shall can be achieved through the appointment of a competent Health and Safety Specialist/In-Charge and/or the appointment of competent specialist team to undertake carrying out risk assessments.

Competency as defined by OSHAD-SF-Technical Guidance – Process of Risk Management Version 3.03 is having sufficient training, experience, or knowledge and other qualities to enable this person/team to properly undertake the measures needed to comply with OSH legislations.

The competent Health and Safety Specialist/In-Charge shall form a team comprising of employees from each department or undertake the assessment by himself to identify the Environment, Health and Safety hazards under the guidance of the EHS Committee-Campus Level. Where required,

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external consultants may be appointed to assist or perform hazard identification and risk assessment. As part of the team formation, the Health and Safety Specialist/In-Charge shall ensure that the selected team members have an understanding of the process being assessed and the risk assessment procedure and methodology.

If the team does not have the required understanding regarding the hazard identification and risk assessment, then the EHS Committee-Campus Level/Health and Safety Specialist/In-Charge shall arrange a training session or a workshop for the team who are required to perform the EHS hazard(s) identification and risk assessment.

5. CONSULTATION:


Prior to undertaking any risk assessments, the staff who are involved in the understanding of the process or task, should be consulted to gain an understanding of the hazards involved and how the task is undertaken. This will help ensure that any measures that are identified to control risk can be implemented without creating additional risk(s) or complicating the processes.

In addition to that, consultation among all the level of employees, contractors and stakeholders, throughout the risk management process, is greatly beneficial because it brings together different areas of expertise, allows employees to have ownership of risks and solutions, increases the likelihood that employees will be committed to implement the control measures and improves trust, communication and teamwork.

6. ROLES & RESPONSIBILITIES

6.1 EHS Unit

- Ensure that the risk assessment procedure is implemented within CS and all HCT campuses and that the risk register is developed, implemented and reviewed periodically.
- Review the risk assessment of all campuses.
- Ensure training of employees regarding hazard identification and risk assessment are done periodically through workshops, training sessions etc.
- Ensure the communication of the risk assessments results to all responsible and concerned departments within HCT campuses are done and maintained.
- Ensure that all hazards identified are reviewed and the required actions are implemented in consultation with the EHS committee campus levels.
- Ensure that all risk assessments remain as an ongoing process and updated (at least annually and whenever required for all HCT campuses, for example, after EHS incidents or near misses, when introducing changes, new employees etc.) and that risk assessments do not become outdated.

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6.2 EHS Committee – Campus Level


- Support the implementation of this procedure within the campus.
- Aware of the campus risk assessments contents and participated in the hazard identification and review of the control measures.
- Ensure that the identified hazards are brought to the attention of the concerned.
- Ensure that the hazard identification and risk assessment awareness and training are provided to the relevant employees through workshops, training sessions etc.
- Ensure that the risk assessments results are communicated to all responsible people and departments within the campus.
- Ensure to maintain the review of the risk assessments on a regular basis and to have it updated (at least annually and whenever required for, for example, after EHS incidents or near misses, when introducing changes, new employees etc.) and that risk assessments do not become outdated.

6.3 Health & Safety Specialist/In-Charge

- Ensure that all hazards are identified and reviewed and the required actions are implemented in consultation with the EHS Committee.
- Ensure that the EHS risk assessment of all activities performed within the campus (Both routine and non-routine) are carried out as per this procedure and are reviewed periodically.
- Follow up with the implementation of risk assessment controls.
- Provide hazard identification and risk assessment awareness and relevant trainings for the campus employees through workshops, training sessions etc. on a regular basis.
- Communicate the results of the risk assessment to all responsible people within the campus.

6.4 Department Heads

- Ensure the participation in identifying all the hazards in their areas/departments and selection of control measures as per the Hierarchy of Control to reduce the risks to ALARP levels.
- Ensure that the risk assessment of all activities performed within the areas/departments (Both routine and non-routine) is carried out as per this procedure and reviewed periodically and maintained not to be outdated at all times.
- Ensure that all department employees are familiar with the hazard identification and risk assessment process.
- Ensure that all department employees participate in hazard identification and risk assessment awareness and relevant trainings and workshops that are provided.
- Ensure the implementation of risk assessment controls.

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6.5 HCT Employees

- Participate in the hazard identification and control process.
- Participate in the hazard identification and risk assessment awareness and relevant trainings and workshops that are provided.
- Notify the Health and Safety Specialist/In-Charge at the campus of any EHS concerns or hazard (s) present at the workplace.

7. PROCEDURE


EHS risk assessment is an ongoing process and shall be undertaken at various times, including:

- When planning or making change to a work procedure and/or practice and design of work areas, that may result in an increased risk to employees or others.
- When making any changes in supply chains.
- When introducing new equipment, materials and substances into the workplace.
- After an EHS incident or near miss.
- Introducing new employees.
- When a high level of risk is involved with a specific work activity.
- Before work activities begin, including any work that might require a permit to work, e.g. repairs requiring specific works such as an electrical lock-out, confined spaces, working at height etc. Here a risk assessment needs to be carried out and a work permit issued for the specific work.
- When a hazard is present outside the workplace capable of adversely affecting the environment, health and safety.
- When legislative laws, requirements and obligations change including regulations.
- When new information becomes available concerning work, work practices, plants, equipment or substances that may affect the environment and health and safety.

7.1 STEPS OF RISK ASSESSMENT:

The risk assessment process can be systematically divided into five steps:

- (i) **Identify hazards**, based experience, knowledge, practices, recorded data and other information. Possible ill-health to persons/accident, fire or property loss are needed to be identified as well as the existing control measures (if any) as highlighted in point.8 (Forms) of this procedure.
- (ii) **Identify who can be harmed or what can be damaged from the risk and how and to what event.**
- (iii) **Evaluate the EHS risks**, this is determined by evaluating the consequences, likelihoods of the identified hazard(s) and calculating the risk using the risk rating – Table 3 as highlighted in this procedure.

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- (iv) **Control the risks**, by implementing the most effective control measures using the Hierarchy of Control to reduce risks to ALARP level. You should provide references of any HCT/OSHAD procedures that should be implemented to control the risks as highlighted in point.8 (Forms) of this procedure.
- (v) **Record your findings and maintain the risk assessment**, by monitoring the effectiveness of the implemented control measures and reviewing the risk assessment periodically by providing a follow-up with an identified responsible person/department/committee and an identified date.

7.1.1 Identify Hazards


To effectively manage the risks and enhance effectiveness of the EHS system, all activities shall be subjected to risk assessment. A systematic approach shall be adopted for identifying the hazards and assessing the associated EHS risks in order to help in the decision-making process for risk reduction measures.

Start the process of identifying the hazards by walking around the workplace to identify the likely risk issues which may arise from work activities, plant and machinery, known hazards, incident reports and known near misses. This may be achieved using a hazard walkthrough form as highlighted in Point.8 (Forms) of this procedure.

Some hazards are part of the work process, such as mechanical hazards, noise or toxic properties of substances. Other hazards result from equipment or machine failures and misuse, chemical spills and structural failures. It may be important in order to identify hazards to observe the work process in person and consult with the employees undertaking the task to consider all possible causes and scenarios.

When identifying the EHS hazards, the identification team shall consider the following:

- All routine and non-routine activities, employees and contractors.
- Infrastructure, equipment and materials at the campuses.
- Manufacturer's instructions or data sheets such as (safety data sheets) and plant or processes (instruction manuals).
- Human behaviour, capabilities and other human factors.
- The list of existing control measures in place.
- When there is a change or proposed change in the material usage, equipment/machines, processes, activities and service specifications.
- Hazards originating outside or within the vicinity of the colleges, which are capable of adversely affecting the environment, health and safety of persons under the control of HCT within the workplace.
- Hazards presented by inclement weather and/or emergency situations.

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- Modifications to the procedures/work instructions, operating practices etc. including temporary changes and their impacts on operations, processes and activities.
- Applicable legal and other requirements that are required to be complied with for carrying out operations.
- The design and modifications to work areas, processes, installations, machinery/equipment, operating procedures and work organizations, including their adaptation to human capabilities and
- Analysing previous workplace inspection sheets, incident logs, near misses, unsafe acts/unsafe conditions reports and complaints as well as internal/external audit reports.

7.1.2 Identify Who can be harmed/What can be damaged and How

A list of groups of people and their components that could be affected by the hazards shall be identified taking into account:


- (i) HCT Employees
- (ii) Visitors
- (iii) Students
- (iv) Contractors
- (v) Members of the public and community
- (vi) Environment
- (vii) Specific sensitive or protected environmental areas.
- (viii) Specific groups who may have additional difficulties such as new or expectant mothers, people of determination etc.
- (ix) Plant/Equipment/Machinery/Property damage.

Identify how each group and component could be harmed by the hazards identified as this will help to identify the appropriate control measures to help reduce the risks to ALARP levels.

7.1.3 Evaluate the EHS Risks

Once the hazard is identified, risk assessment shall be conducted by evaluating the risk potential and significance. Significant risks shall be managed through appropriate control measures to ensure that it is brought to ALARP levels. Risk assessments shall be done using the risk assessment form as highlighted in Point.8 (Forms) of this procedure.

While evaluating the EHS risks, other conditions that are required to be considered like abnormal conditions (Risk is beyond the acceptable limit and does not warrant specific preventive/protective provisions or measures) and emergency conditions in which (Risks are contained or mitigated by invoking the emergency procedures related with the potential foreseeable emergency situations).

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Evaluating risks involves considerations of the sources of risk, their consequences and the likelihood that those consequences may occur.

The level of risk shall be calculated by multiplying the severity of the hazard consequence and the likelihood of the occurrence of the hazard as shown in the below formula:

$$\text{Risk Score} = \text{Severity of the Consequence} \times \text{Likelihood of Occurrence}$$

Severity of the consequences and likelihood may be estimated through the following:

- (i) Using statistical analysis and calculations if there are no reliable or relevant past data is available.
- (ii) Using past records and data.
- (iii) Current practice and relevant experience.
- (iv) Relevant published literature.
- (v) Economic, engineering or other models and
- (vi) Specialist and expert judgements.


Techniques include:

- (i) Structured interviews with experts in the area of interest.
- (ii) Use of multi-disciplinary groups of experts.
- (iii) Individual evaluations using questionnaires and
- (iv) Use of models and simulations.


Where appropriate, the confidence placed in estimating the risk levels shall be included in the remarks field of the risk assessment form and assumptions made in the analysis shall be clearly stated as well.

The severity of the consequences and the likelihood scores can be obtained from the below Table-1 (Likelihood of Occurrence) and Table-2 (Hazard Consequences).


Rating	Descriptor	Likely Frequency	
		Environment	Health and Safety
5	Frequent	Continuous or will happen frequently	Occurs frequently in UAE
4	Often	5-12 times per year	Occurs several times per year in UAE
3	Likely	1-5 times per year	Has occurred at least more than once in UAE
2	Possible	Once every 5 years	Has occurred in similar operation (worldwide)
1	Rare	Less than once every five years	Never occurred.
Table 1 – Likelihood of Occurrence			

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Area Impacted	Insignificant Consequence (Score = 1)	Minor Consequence (Score = 2)	Moderate Consequence (Score = 3)	Major Consequence (Score = 4)	Catastrophic Consequence (Score = 5)
Environment					
Land based Eco-system	Insignificant Environmental Impact. Occasional damage by erosion of flora or fauna habitats.	Minor impacts on flora/fauna and habitat and no negative impacts on ecosystem. Limited damage to a minimal area of land of no significant value. Temporary damage/disruption (Less than 1 month) to flora or fauna habitats.	Significant changes in flora/fauna populations and habitat. Disruption to or some death of rare flora/fauna but not resulting in eradication of endangered species. Non-persistent but possible widespread damage land; damage that can be remediated without long term loss.	Continues and serious damage by erosion or to flora or fauna. Major disruption to or frequent death of rare flora or fauna.	Long term significant change in population (e.g. eradication of endangered species) or habitat with negative impact on ecosystem function. Widespread destruction to a significant area of land, rare flora and fauna and/or groundwater resources.
Aquatic Eco-system	Occasional short-term impact and/or disruption to aquatic flora and fauna.	Minor impact on aquatic eco-system including flora, fauna and habitat. No significant impact on water resources.	Significant localized impacts but without longer term impact on aquatic eco-system or short term impacts on water resources.	Significant widespread impact on protected wildlife (e.g. Shorebirds, marine plants, fish breeding grounds) or aquatic eco-system of modern duration.	Damage to an extensive portion of aquatic eco-system resulting in severe impacts on aquatic populations and habitats and/or long term impact on water resources.
To be continued →					

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Area Impacted	Insignificant Consequence (Score = 1)	Minor Consequence (Score = 2)	Moderate Consequence (Score = 3)	Major Consequence (Score = 4)	Catastrophic Consequence (Score = 5)
Environment					
Atmosphere and waste	Temporary nuisance from noise, odour, dust, other air emissions, greenhouse gases, vibration and visual impact. Minor use of water fuels and energy and other natural resources. Results in generation of significant quantities of non-hazardous wastes.	Minor environmental impact due to contained release of pollutant (Including dust, odour and noise) fire or explosion with no lasting detrimental effects. No outside assistance required. Significant use of water, fuels and energy and other natural resources.	Creation of noise, odour, dust and other controlled and uncontrolled air emissions, greenhouse gases, vibration and visual impact at significant nuisance levels. Results in the generation of significant quantities of hazardous wastes.	Major environmental impact due to uncontained release, fire or explosion with detrimental effects. Outside assistance required.	Catastrophic environmental impact due to uncontained release, fire or explosion with detrimental effects. Outside assistance is required. Extensive chronic discharge of persistent hazardous pollutant. Results in the generation of significant quantities of intractable wastes.
Cultural Heritage (Indigenous and Modern)	Minor repairable damage to common place structures.	Minor repairable damage to structures/of Cultural significance or minor infringements of cultural values.	Modern damage to structures, of Cultural significance or major infringement of cultural values/scared locations.	Major damage to structures, items of cultural, significance or major infringement of cultural values/scared locations.	Irreparable damage to highly valued structures, items, locations of cultural significance or scared value.
To be continued →					

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Area Impacted	Insignificant Consequence (Score = 1)	Minor Consequence (Score = 2)	Moderate Consequence (Score = 3)	Major Consequence (Score = 4)	Catastrophic Consequence (Score = 5)
Human Health and Safety	Minor injuries which may require self-administered first aid. Injured person can continue to perform normal duties.	Injuries requiring medical treatment by medical practitioner. Person is unable to continue to perform duties.	Serious injuries requiring medical treatment by medical practitioner and immediate evacuation to hospital with potential long-term or permanent disabling effects.	Single fatality	Multiple fatalities.
Production Loss	Incident event without causing production loss	Production loss or delay up to one week.	Production loss or delay of one week to one month.	Production loss or delay for over one month.	Loss of license to operate or ability to produce indefinitely.
Total cost of impacts or incident events	Financial loss (Compensation, fines and costs to repair plant, damage) of less than AED 5,000.	Financial loss (Compensation, fines and costs to repair plant and damage) of AED 5,000 – AED 50,000.	Financial loss (Compensation, fines and costs to repair plant and damage) of AED 50,000 – AED 500,000.	Financial loss (Compensation, fines and costs to repair plant and damage) of AED 500,000 – AED 10 Million.	Several financial penalties or legal liabilities. Financial loss (Compensation, fines and costs to repair plant and damage) of greater than AED 10 Million.
Table 2 – Hazard Consequences					

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To consider the likelihood and severity of consequences of risks, follow the below Table – 3 Risk rating, noting that after the evaluation of risk, the additional control measures should be identified as per the degree of the risk.

Likelihood (From Table-1)	Consequences (From Table – 2)				
	Insignificant (1)	Minor (2)	Moderate (3)	Minor (4)	Catastrophic (5)
Rare (1)	1	2	3	4	5
Possible (2)	2	4	6	8	10
Likely (3)	3	6	9	12	15
Often (4)	4	8	12	16	20
Frequent (5)	5	10	15	20	25
15 - 25	Extreme Risk	Activity should not proceed in current form.			
8 - 12	High Risk	Activity should be modified to include remedial planning and action and be subject to detailed EHS assessment.			
4 - 6	Moderate Risk	Activity can operate subject to management and/or modification.			
1 - 3	Low Risk	No immediate action required, unless escalation of risk is possible.			
Table 3 – Risk Rating					


7.1.4 Controlling Risks

While applying the most effective control measures, you shall use the below Hierarchy of Control to reduce the risks to ALARP level, noting that you should take into note legal requirements, HCT objectives, targets and KPI's, availability of resources, costs and benefits and the status of scientific and technical knowledge.

Health and Safety Specialist/In-Charge shall ensure as well that the implemented controls are effective by performing periodic inspections.

Occupational Health and Safety Control Hierarchy:

- Elimination of hazard(s) (Where Possible);
- Substitution (e.g. The use of less hazardous substances/environmentally friendly materials);
- Engineering/Isolation – For plants and equipment (e.g. Exhaust ventilation);
- Administrative (e.g. written safety procedures, safe system of work, training); and
- Personal Protective Equipment (PPE) – Which should be the last resort if the above measures are not practicable.

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Environmental Aspects Control Hierarchy:

- Avoidance at the point of source. Producers should be examining how impacts can be eliminated.
- Source reduction (Using materials more efficiently, implementing new processes and technology and replacing disposal products with reusable and durable ones where practical).
- Reusing to avoid the excessive consumption of resources and impacts.
- Recovery of energy after reduction; reuse and recycling have been fully explored and generally is the final step in the exploitation.
- Treatment/containment/disposal: The leftover materials and waste has to be treated and disposed of properly to safeguard against environmental risks, pest problems and health and safety issues.

7.1.5 Record your findings and maintain the risk assessment

Risk assessment results shall be recorded in the EHS Risk Register and the same shall be maintained and retained as a point of reference to indicate that all risks have been assessed and controlled.

Health and Safety Specialist/In-Charge shall capture complete details pertaining to the risk assessment and provide the risk assessment's final copy to the concerned department(s) within the campus and EHS Unit. Risk register review shall be carried out, at minimum once a year, by the Health and Safety Specialist/In-Charge at the campus, taking into consideration that no incidents have taken place or there are no changes in the process, equipment, management etc.

8 FORMS

- HCT Risk Assessment Form.
- Risk Register Form.
- Opportunity Register Form.
- Hazard Walkthrough Form.
- Risk Assessment Specific Form – for specific uses (e.g. HCT events, contractors unaware or do not have a risk assessment for a job requiring a work permit etc.)

9. REFERENCES

- OSHAD SF – Element 2 – Risk Management, Version 3.1.
- OSHAD SF – Technical Guideline – Process of Risk Management, Version 3.0.
- OHSAS 18001-2007 – Occupational Health and Safety Management Systems – Requirements.
- ISO 14001:2015 – Environmental Management Systems – Requirement.