	GTIIT_EHS_ISO file	File No.: 文件编号： GTIIT_EHS_02_01
		Rev. No.: 版本号： 01
		Effective date: 生效日期: 2019-11-01
File name 文件名	**Lab Experiment Hazard Analysis 实验危害分析**	

Approval process

审批过程

	Name 姓名	**Title 职务**	**Signature 签名**	**Date 日期**
Drafted by 起草人	Xu Guangxiang 许光祥	EHS Officer		
Reviewed by 审阅人	Eran Galor; Shaogang Chen陈少刚; Sehoon Park; Vijaykumar Jadhav; Ehud (Udi) Sarig;	Deputy General Director; PVC assistant & Safety coordinator; Academy Safety Representative; MSE Safety Representative; BFE Safety Representative;		
Approved by 批准人		Campus Safety Committee;		

Reversion records

版本历史记录

Rev. No. 版本号	**Publication date 出版日期**	**Rev. reason/ content modified 再版原因/更改内容**
01	2019-11-01	New file 新建文件

Relevant departments (select relevant departments with a "√")

相关部门 (用√勾选相关部门)

Construction Dept. 校园建设部	√	Operation Dept. 校园运营部	√	H.R. Dept. 人力资源部	√
RIGS 研究创新和研究生部	√	U.G. Dept. 本科教学部	√	I.T.Dept. 电脑信息部	√

Relevant documents 相关文件

No无

Distribution mode (black) **发放方式** (涂黑)

Electronic edition ■ Paper edition □

电子版 ■ 纸版 □

1.0 Purpose 目的

By identifying potential safety hazards before work, identifying countermeasures to eliminate or mitigate the effects of hidden dangers, and guiding the development of relevant safety operation procedures based on their work content, allowing operators to avoid injuries or illnesses during their operation and control or avoid Potential harm.

通过在工作前找出安全隐患、确定消除或减轻隐患影响的对策，并指导根据其工作内容制定出相关安全操作流程，让作业人员避免其在操作过程中存在的伤害或疾病，并控制或避免潜在的危害。

2.0 Scope 范围

The provisions of this document apply to all relevant special operations, high-risk operations, and laboratory operations of the GTIIT.

本文件规定适用于广东以色列理工学院所有相关的特殊作业、高危作业和实验室操作等内容。

3.0 Responsibilities 职责

3.1 Relevant departments are responsible for the identification, assessment and follow-up of safety control measures related to the department's operations, and develop standard safety operation guidelines.

各相关部门负责与部门作业相关的安全危害的识别，评估和安全控制措施跟进，并制定标准的安全操作指引。

3.2 Relevant departments are responsible for the annual review and training of experiment hazard analysis within the department.

各相关部门负责部门内部岗位的实验危害分析年度回顾与培训。

4.0 Terminology 术语

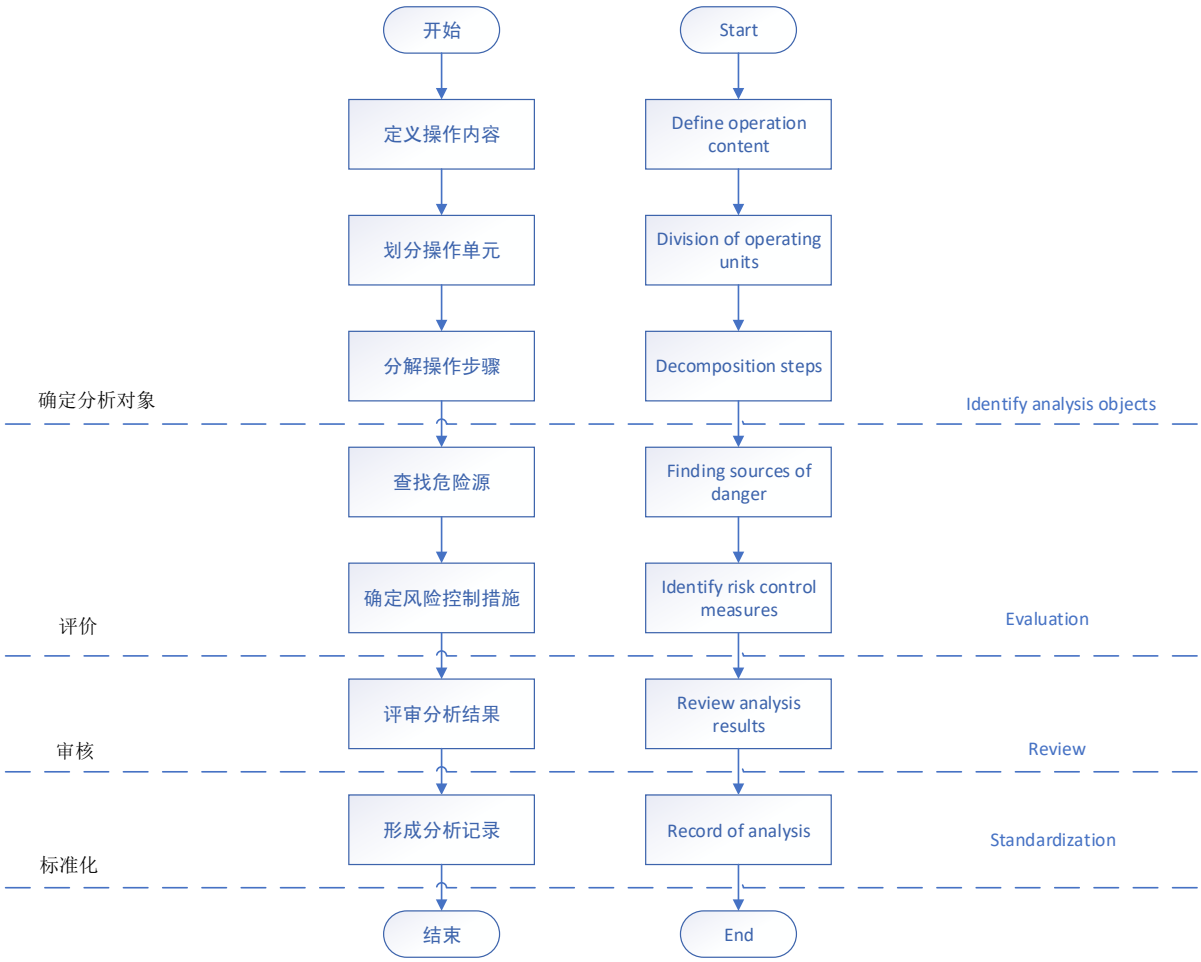
Experiment Hazard Analysis: it is a preventive tool that analyze the protential risk behind these works we will do, and develop relevant control measure to eliminate or mitigate the protential hazard to the level we can accept.

实验危害分析：是一种事故的预防工具，通过事先或定期地对某项操作进行安全、职业健康、消防、环保等因素的分析，发现潜在的危害因素，采取措施，以消除或最大限度地减少事故的发生。

5.0 Flow 流程

5.1 Post hazard assessment analysis flowchart

岗位危害评估分析流程图



5.2 Identify analysis objects 确定分析对象

5.2.1 Define operation content or analysis object 定义操作内容或分析对象

The work required to define an experiment hazard analysis may include, but is not limited to, the following:

定义需要进行实验危害分析的工作可包括，但不仅限于以下范围：

- Locations such as campuses or laboratories, such as chemical experiment operations, preparation of safe operation procedures for certain experiments, and maintenance operations of confined spaces in schools;

  校园内或实验室等位置，例如化学实验操作，编制某个实验的安全操作流程、校内密闭空间维修作业；

- Planned and passive work, such as regular high pressure equipment cleaning

  计划的和被动性的工作，例如定期的高压承压设备清洗等

- Defined tasks, such as forklift driving, loading and unloading, etc.
  确定的任务，例如叉车驾驶、装卸货等

The definition of operation should be based on the actual situation of the site and choose a method that is convenient for analysis.

操作的定义应根据现场实际情况，选择便于分析的方式。

5.2.2 Gather information about operations 收集操作相关信息

Collect the following information as evidence for a security analysis, including:

收集以下信息，作为安全分析的证据，包括：

- Exposure to existing energy;
  接触存在的能量；
- Operating equipment, facilities, tools, etc.;
  操作的设备、设施、工具等；
- Contact with materials
  接触物料；
- Operating environment: site, operating space;
  操作环境：场地、操作空间；
- Emergency facilities and equipment;
  应急设施、设备；
- Health protection facilities and equipment;
  健康防护设施、设备；
- Personal protection, etc.
  个人防护等。

5.2.3 Division of operating units 划分操作单元

5.2.3.1 If it involves a one-time operation that covers a large area, it can be broken down into multiple separate tasks, each operation consisting of different steps. Too many quantities are not conducive to analysis, and each work should be divided into 2-5 operating units.

如涉及一次性操作涵盖范围较大，可分解成多个单独的工作，每个操作由不同步骤组成。数量太多，不利于分析，宜将每个工作划分成2-5个操作单元。

5.2.3.2 If the scope of the operation is appropriate, the decomposition operation steps can be directly performed.

如操作涵盖范围合适，可以直接进行分解操作步骤。

5.2.4 Decomposition steps 分解操作步骤

Note the following 应注意以下事项：

- Each step contains as many actions as possible;
  每一个步骤尽可能只含一个动作；
- The decomposed steps should not be too complicated, generally no more than 10 steps;
  分解出来的步骤不要太复杂，一般不超过10个步骤；
- The language of description should be easy to understand and not too professional or terminological;
  描述的语言要通俗易懂，不能太专业或术语化；
- Concerned about the operation actions, status, environment, clear words;
  关注的是操作动作、状态、环境，用词一目了然；
- Be sure to list all the steps you take to complete this operation, some steps may not be performed every time, but as long as this step is part of the work, it should be listed.
  一定要列出完成此项操作所经过的所有步骤，有些步骤可能不是每次都要进行，但是只要这一步骤是该项工作的一部分，就应该将其列出。

5.3 Analysis 分析

5.3.1 Finding sources of danger 查找危险源

- According to "Classification and Code of Dangerous and Harmful Factors in Production Process" to find the source of danger from physical, chemical, biological, physiological, behavioral and other six types of dangerous and harmful factors
  按《生产过程危险和有害因素分类和代码》从物理、化学、生物、生理、行为及其它六类危险和有害因素来查找危险源；
- Organize laboratory instructors or employees with practical experience to find sources of danger.
  组织有实践经验的实验室教员或员工，查找危险源。

5.3.2 Identify risk control measures 确定风险控制措施

When determining controls or considering changes to existing controls, consider reducing risk in the following order:

在确定控制措施时，或考虑改变现有的控制措施时，应根据下列顺序考虑降低风险：

- eliminate;
  消除；
- Substitute;
  替代；
- engineering control;
  工程控制；
- Identification / warning and / safety guidance control;
  标识/警告和/安全操作指引控制；
- Personal protective equipment
  个人防护器具；
- Emergency measures.
  应急措施。

5.4 Review 评审

After the risk control measures are determined, they shall be reviewed. The review includes the following aspects:

确定风险控制措施后，应予以评审，评审包括以下方面：

- Whether the control measures reduce the risk to an allowable level;
  控制措施是否使风险降至可容许水平；
- Whether control measures have created new sources of danger;
  控制措施是否产生了新的危险源；
- The necessity and practicability of control measures.
  控制措施的必要性和实用性。

5.5 Implement 实施

5.5.1 Set up a experiment hazard analysis team. The team leader is a laboratory instructor or safety leader. The team members include but are not limited to the following:

成立实验危害分析小组，组长为实验室教员或安全负责人，组员包括但不限于以下人员：

- Laboratory operators
  实验室操作人员；
- Laboratory supervisor
  实验室主管；
- If equipment is involved, professionals such as mechanical engineers or electrical engineers of the corresponding equipment can be invited.
  如涉及设备则可邀请相应设备的机械工程师、或电气工程师等专业人员。

5.5.2 The Lab PI is responsible for collecting post operation information according to the requirements of "5.2.2".
实验室负责人负责根据“5.2.2”的要求收集岗位操作信息。

5.5.3 The team leader convened a team member to hold an experiment hazard analysis meeting and fill out the Experiment hazard analysis Record Form.
组长召集组员开实验危害分析会议，并填写《实验危害分析记录表》。

5.5.4 The review team held a review meeting and put forward review opinions.
评审小组召开评审会议，提出评审意见。

5.5.5 The experiment hazard analysis team revises the Experiment hazard analysis Record Form based on the review comments and submits it to the department manager and HSE & S manager for approval.
实验危害分析小组根据评审意见，修改《实验危害分析记录表》，并交由部门经理、HSE&S经理批准。

5.6 Regular review and update 定期回顾与更新

5.6.1 Hazard assessment records for special positions in the laboratory or school are valid for one year and are reviewed at least once a year.
实验室或校内特殊岗位危害评估记录有效期1年，每年至少回顾一次。

5.6.2 When an incident occurs in a special post in a laboratory or school, the post hazard assessment record should be updated based on the results of the incident investigation.
实验室或校内特殊岗位发生事件时，应根据事件调查结果更新岗位危害评估记录。

5.7 Training 培训

5.7.1 New experimental personnel should be trained to master the relevant experiment hazard analysis requirements before conducting experiments and before new special operators enter the post.
新实验人员进行实验前、新的特殊作业人员入职前，应培训其掌握相关的实验危害分析要求。

5.7.2 The laboratory conducts an experiment-related operational hazard analysis once a year and requires retrospective training.

实验室每年进行一次实验相关操作危害分析要求回顾培训。

5.7.3 After the Risk Assessment Form is updated, the personnel involved should be organized for training.

《风险评估表》更新后，应组织涉及的人员进行培训。

6.0 Annex 附件

1. Experimental Hazard Analysis实验危害分析表