

國立中興大學基因體暨生物資訊學研究所

安全衛生工作守則

104年04月20日所務會議訂定通過

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第一章 總則

第一條 為維護本所師生之安全與健康，依職業安全衛生法第三十四條及職業安全衛生法施行細則第四十一條之規定，訂定本安全衛生工作守則。

第二條 本所全體師生，及非本所師生但在本所之實驗室暨實習場所從事實驗工作者，均應遵守本安全衛生工作守則之規定。

第二章 事業之安全衛生管理及各級之權責

第三條 本所依職業安全衛生法第二十三條，設置安全衛生小組，其辦理事項如下：

- 一、釐定職業災害防止計畫，並指導相關實驗室實施。
- 二、規劃、督導相關實驗室之安全衛生管理。
- 三、規劃、督導安全衛生設施之檢點及檢查。
- 四、指導、監督有關人員實施巡視、定期檢查、重點檢查及作業環境測定。
- 五、規劃、實施安全衛生教育訓練。
- 六、督促及追蹤相關人員配合學校實施健康檢查與管理。
- 七、督導職業災害調查及處理，辦理職業災害統計。
- 八、向系主任提供相關實驗室安全衛生管理資料及建議。
- 九、其他與實驗室相關之安全衛生管理事項。

第四條 本守則中所稱負責人係指：

- 一、全所共用的儀器設備及場所之負責人為所長。
 - 二、本所教學、研究實驗室之負責人為該場所之使用管理人或指導老師。所長負責督導各實驗室實施安全衛生維護之職責。內容包括：
 - 一、督導有關人員實施巡視、定期檢查、重點檢查及作業環境測定。
 - 二、督導有關人員進行污染源及意外事故調查統計，並提出事件發生原因分析報告。
 - 三、調查實驗室具潛在危害之作業環境。
 - 四、對於具潛在危險之作業，訂定標準作業程序[SOP]，公告周知。
 - 五、督導進行資源回收之工作。
 - 六、研究實驗室災害防止對策。
 - 七、督導其他有關安全衛生小組所規劃之各項事宜。
- 各場所之負責人應負責督導、執行下列有關安全衛生事項：
- 一、調查實驗室中常用危害性化學物質。
 - 二、執行安全衛生管理事項。
 - 三、督導定期檢查、重點檢查、作業檢點及其他有關檢查事項。
 - 四、實施定期或不定期巡視。
 - 五、提供改善工作方法。

- 六、教導學生了解各種安全防護設備之性能及使用方法。
- 七、指導學生依標準作業程序操作實驗。

第三章 機械、設備或器具之維護及檢查

第五條 各場所之負責人應對下列事項，設置符合規定之安全衛生機械、設備或器具：

- 一、防止機械、設備或器具等引起之危害。
- 二、防止爆炸性或發火性等物質引起之危害。
- 三、防止電、熱或其他之能引起之危害。
- 四、防止採石、採掘、裝卸、搬運、堆積或採伐等作業中引起之危害。
- 五、防止有墜落、物體飛落或崩塌等之虞之作業場所引起之危害。
- 六、防止高壓氣體引起之危害。
- 七、防止原料、材料、氣體、蒸氣、粉塵、溶劑、化學品、含毒性物質或缺氧空氣等引起之危害。
- 八、防止輻射、高溫、低溫、超音波、噪音、振動或異常氣壓等引起之危害。
- 九、防止監視儀表或精密作業等引起之危害。
- 十、防止廢氣、廢液或殘渣等廢棄物引起之危害。
- 十一、防止水患或火災等引起之危害。
- 十二、防止動物、植物或微生物等引起之危害。
- 十三、防止通道、地板或階梯等引起之危害。
- 十四、防止未採取充足通風、採光、照明、保溫或防濕等引起之危害。

第六條 負責人必須依照下列規定，對所列之各項場所、機械、設備或器具，實施檢查、維護與保養。

- 一、檢查方式區分為定期檢查、重點檢查、作業檢點等，責由各場所負責人研擬並依計劃實施。
 - (一)定期檢查：儀器、設備之每日、每月或每年定期檢查及維護保養。
 - (二)重點檢查：儀器於初次使用或拆卸、改裝、修理後開始使用，應實施重點檢查。
 - (三)作業檢點：每日或每次作業前，實施儀器、設備作業檢點，以確定是否良好安全堪用。
- 二、各項檢查須詳細記錄，一份由各場所留存，一份送所辦備查，檢查記錄包括下列各要項：
 - 1. 檢查日期年、月、日。
 - 2. 檢查項目、檢查方法。
 - 3. 檢查結果包括發現危害、分析危害因素。
 - 4. 依檢查及風險評估結果採取改善措施並定期檢討合宜性。
 - 5. 檢查人員及各場所負責人簽章。
- 三、具有危險性之機械或設備，非經勞動檢查機構或中央主管機關指定之代行檢查機構檢查合格，不得使用；其使用超過規定期間者，非經再檢查合格，不得繼續使用。

第四章 工作安全及衛生標準

第七條 一般性安全衛生工作守則

- 一、必須遵守各實驗室及場所訂定之安全衛生注意事項。
- 二、必須接受與工作本身有關之安全衛生教育及訓練。
- 三、必須接受校內規定之體格及健康檢查。
- 四、各實驗室內嚴禁吸煙、飲酒、嚼檳榔、吃口香糖及其他妨礙工作之進食等。
- 五、工作場所之安全門、通道路口、樓梯口、進出口等處，不得堆積任何物品。
- 六、必須熟悉滅火器、消防設備之使用方法及放置地點。
- 七、嚴禁任意使用所內規定外之任何電氣用品。
- 八、必須了解各工作場所逃生及疏散之路線。
- 九、若遇火災等事故，不可搭乘電梯逃生。
- 十、離開工作場所務必隨手將不用之電氣、瓦斯、氣體及水龍頭之開關關閉。
- 十一、發現系館內任何地方有危害安全衛生之人、事、物等，必須立即反映有關人員作緊急處理。

第八條 專業性之安全衛生工作守則

一、一般專業工作人員工作守則

1. 遵守安全守則及安全工作法。
2. 操作實驗或儀器時，應按標準程序作業。
3. 準備、配製化學藥物時，應採標準防護措施(如帶口罩及手套等)。
4. 不慎觸及有害的化學藥劑時，應依藥品性質，謹慎處理。
5. 遇有意外事故發生，不論有無人員受傷均應報告各場所負責人及所長。
6. 工作場所內嚴禁抽煙及亂丟垃圾。
7. 碎玻璃等尖銳品應按規定分類處置。
8. 最後離開工作場所者須注意水、電源、瓦斯之關閉。

二、操作下列機械之工作守則

(1) 高壓氣體容器(高壓鋼瓶)作業安全衛生工作守則

高壓氣體容器，不論裝盛或空容器，使用上應注意下列事項：

1. 確知容器之用途無誤者，方得使用。
2. 高壓氣體容器應標明所裝氣體之品名，不得任意灌裝或轉讓。
3. 容器外表顏色不得擅自變更或擦掉。
4. 容器搬動不得粗暴或使之撞擊。
5. 容器狀況掛籤應妥善管理、使用。
6. 容器應保持在攝氏四十度以下，安穩置放並加固定。
7. 氣體容器周圍 2 公尺內不得有易燃或揮發性物品。
8. 氣體出口不得沾有油漬。
9. 隨時檢查軟管接頭有無漏氣、鎖緊或老化龜裂現象，尤其折彎角度過大，導管有折裂之虞。
10. 閥、旋塞開啟時，必須徐徐打開。
11. 隨時注意壓力與流量之變化。
12. 開瓶器應置於瓶上，且須注意防止凍傷之傷害。

(2) 操作高壓殺菌釜之安全衛生工作守則：

1. 使用前務必登記或預約，並需事先熟悉儀器操作程序；若為第一次操

作，則需有操作經驗者在旁指導。

2. 購置製造過程檢查合格者之此等設備，且購置使用後應作定期檢查，停用時應向檢查機構報備。
3. 為防止災害發生，凡發現有異狀時，操作人員應即採取適當之措施，並應確認安全閥壓力錶及其他安全設備無異狀後方可使用。
4. 使用高壓殺菌釜前，須注意加水至指定高度。
5. 放入滅菌物，關好旋轉把手，打開總電源，開啟加熱電源略超過 start 位置即可，不設定時間，採自動流程。
6. 清洗和滅菌只可使用逆滲透水，以免鹽類累積造成鍋垢。
7. 滅菌後殺菌釜內部務必清理乾淨。
8. 使用後關閉總電源。
9. 定期清洗殺菌釜。
10. 滅菌過程要注意壓力，當壓力超過警戒線時，關閉總電源並拔掉插頭，待廠商維修至無安全問題後才能再次使用。

(3) 離心機械操作人員安全衛生工作守則

1. 使用前務必登記或預約，並需事先熟悉儀器操作程序；若為第一次操作，則需有操作經驗者在旁指導。
2. 樣品物放入離心機前 必須先以天平平衡至小數點 1 位。
3. 將樣品物對稱放入適當之 rotor 後注意旋緊蓋子。
4. 使用時，不得超越該機械之最高使用回轉數之90%。同時，必須注意設定之溫度、轉速、時間及 code number。
5. 使用完後，須待離心機轉速完全歸零，才可打開機門取出物品。
6. 使用完後，須注意 chamber 之清潔。

三、實驗室安全衛生守則

(1) 一般實驗室安全衛生工作守則

1. 從事任何實驗前，應確認做好安全評估，充份了解使用設備之安全狀況，並對過程中可能發生之危害提出預防方法，並採取適當的防護措施。
2. 從事化學實驗有關工作時必須穿著實驗衣，必要時須戴手套。
3. 生化實驗室的工作人員必須熟悉使用高腐蝕性藥品(如硫酸、鹽酸或氫氧化鈉等)和毒性藥品(如EtBr, phenol, 氰化物)之一般危險性防止處理的準則。
4. 實驗場所必須備有安全設備，如滅火器、抽風設備、淋浴設備、眼睛沖洗器、防護面具、手套及必要急救藥品，工作人員必須熟悉擺設的位置與使用方法。
5. 從事生化實驗時工作場所不得戴隱形眼鏡，因使用有機溶劑或揮發性物質可增加滲透壓易傷害眼睛。
6. 被化學品濺潑，或眼睛有任何藥品或異物進入，應立即用水沖洗或張眼浸泡於水中十五分鐘以上，並視情況送醫治療。嚴重事故發生時，請全所廣播求援。
7. 破瓶或其他嚴重意外事件發生時，肇事者應該保持冷靜，簡明標出污染區或放置事先作好之警告標幟用以警告其他人員；同時迅速撤離現

場，馬上到沖洗室沖洗。

8. 清除現場之程序: (1) 穿實驗衣，並著手套，(2) 標示污染區，(3) 預防污染區擴大，(4) 由外而內逐步清洗。
 9. 危害性、有毒性化學藥品應依危害通識規則或環保法令相關規定標示之。
 10. 化學藥品應妥善管理，危險品、易燃品、毒性化學物質應存及於指定藥櫃並上鎖，有害廢棄物及逾期不用之化學品應依規定申報，不得任意棄置。
 11. 乙醚不可置於冰箱內，使用過的必須緊封放置於指定位置。
 12. 烘箱、蒸餾器等加熱設備附近禁放易燃、易爆化學品。
 13. 冷藏化學藥品之冰箱、冷藏櫃內不得放置食品、飲料。
 14. 對於有害物、有毒物或致癌物品之處理，操作人員除戴手套、口罩外，必須在煙櫃中操作。
 15. 進行有爆炸之虞的實驗，應於正對身體前方放置安全擋板或採其它有效的防爆措施。
 16. 檢體、試劑等廢液，應以標準程序處理或分類存放，不得任意傾倒於水槽。
 17. 實驗室內禁止吸菸、及其他妨礙工作之進食。
 18. 遇有警鈴響時，應立即關閉瓦斯及各項氣體，並儘速離開實驗室。
 19. 非上班時間內做實驗應有人照應，嚴禁單獨一人進行危險性實驗。
 20. 各實驗室內應標示緊急連絡人電話。
- (2) 放射性實驗室之安全衛生工作守則
1. 放射性實驗室應張貼適當之輻射警示標語及警語。
 2. 任何放射性物質及可發生游離輻射設備，非經原子能委員會檢查(審查)合格核發使用(操作)執照，不得使用。
 3. 處理放射性物質及操作可發生游離輻射設備之人員，必須接受過有關游離輻射防護之訓練，並領有原子能委員會發給之執照。
 4. 放射性物質進出須登載詳細，妥善存放於指定位置並上鎖。
 5. 工作時應穿戴工作衣、手套、設置正確擋板。離開工作場所前，應先確定操作區及本身未受到污染後，才可脫下工作衣、手套，置於指定地點，並徹底清洗雙手。
 6. 嚴禁在放射性實驗室內吸煙、飲食、存放食物及使用化妝品。
 7. 絕不可用口吸取任何放射性物質。
 8. 皮膚有傷口者，不得操作放射性物質。
 9. 避免放射性物質傾倒潑洒。
 10. 放射性試驗管套或用具應置於有吸收性紙張盛盤內，具有放射性之紙張或廢棄物，應置於放射性廢料桶。
 11. 受污染之用具應加以徹底清洗或儲存，待放射性自行衰減至接近背景值時，再予使用。
 12. 意外情況發生時，注意處理順序: (1)保持冷靜，(2)簡明標出污染區或放置事先作好之警告標幟用以警告其他人員，(3)脫下受污染之衣物，換上備用品並確定無受污染後方可離開，(4)皮膚若有受到污

染，則至沖洗室除污。

13. 受污染現場之處理順序: (1) 穿實驗衣，著手套，使用擋板，(2) 地毯式偵測，(3) 標示污染區，(4) 由外而內逐步清洗，(5) 無法去除者視核種類別，以適當之擋板或隔離物覆蓋。
14. 可發生游離輻射之設備，在使用前應作游離輻射防護之安全檢查，檢查記錄應存備查考。
15. 放射性物質及可能發生游離輻射設備之記錄，應定期報送原子能委員會，並接受原子能委員會隨時派員之稽合。
16. 依法令一定限量以內之放射性物質得免予管制，其限量悉依法令辦理。
17. 依本校輻射防護委員會之規定確實執行廢料分類工作，定時處理廢料，並且定時偵測放射性物質污染情形 (wipe test)。

四、廢棄物處理安全衛生工作守則

1. 嚴格執行感染廢棄物之分類，對針頭、注射器、培養皿、試管、玻璃片、手術刀等危險性物品，外運時，必須有特定容器裝起，並標示，方能外運處理。
2. 毒性、腐蝕性廢棄物應以特定容器裝好，通知場所負責人員處理。
3. 有感染性之廢棄物，須先經滅菌處理後，才可丟棄。
4. 將感染性廢棄物垃圾袋送進高溫消毒鍋內時，不可以手擠壓，以防針頭刺傷。
5. 除非特殊狀況，應將當日之廢棄物於當日處理完畢。
6. 廢棄物處理完畢後，應立即洗手。

五、有機溶劑工作守則

1. 盛放有機溶劑之容器應隨手加蓋，以防止蒸氣溢散。
2. 作業場所之通風換氣設施在作業時間內不得停止運轉。
3. 處理有機溶劑時，應戴用防護手套防止皮膚直接接觸溶劑。
4. 有機溶劑應存放於指定地點並上鎖，藥瓶上需標明種類名稱，並儘量減少存量。
5. 有機溶劑之廢液不可任意傾倒，應倒入指定之存放容器內。
6. 作業場所設置之局部排氣裝置，每年應依規定定期實施自動檢查二次以上。開始使用、拆卸、改裝或修理時亦應依規定實施重點檢查並作紀錄。
7. 作業場所負責人，應於作業場所公告周知工作人員有機溶劑毒性、操作注意事項，以及緊急應變措施。
8. 工作遇人員因急性中毒失去知覺時，立即將其移至空氣流通處，施以急救，並立即緊急通報負責人。

六、電腦作業安全守則

1. 檢查電力供應是否符合規定；插頭與插座是否緊密貼牢，電源或傳輸纜線是否有破損、斷(掉)落，設備是否有潮濕等現象，以防漏電感電事故發生。
2. 檢查主機及週邊設備的擺置是否穩當，承載設備是否牢靠堪用。
3. 經常擦拭終端機螢幕及護目裝置(護目鏡或護目網)上之灰塵及手印，以保持清潔。

4. 檢查終端機的功能，如鍵盤上的鍵是否輕觸即可使螢幕上有字顯示，螢幕畫面是否穩定，有無飄動的現象，亮度及對比是否適當，如螢幕有老化或影像顯像不良者，應即更換或送修。
5. 調整桌椅及螢幕之高度和角度，使眼睛略高於螢幕上緣，且保持45公分至72公分的距離，不可太近或太遠，桌、椅、鍵盤的高度應配合個人工作，調整至適當之高度。
6. 於可能範圍內，調整螢幕的方向，使幕前反光現象減至最低，幕後方向應與其他工作人員保持適當安全距離。
7. 每工作二小時至少須有15分鐘適當的休息。
8. 操作中，如發現有異味、冒煙、運轉不順等現象時，應立即關掉電源，並報請維修部門檢修。

七、消防設備

1. 滅火器應定期保養檢查，更換藥劑，填妥保養日期並簽名。且每位員工必須熟練各類消防設備使用，以便災害發生時能及時搶救。
2. 機械電氣設備，應定期請技術人員確實檢查，妥善保養，以免發生過熱失火或走火等事故。
3. 易燃廢物，如廢油布、廢紙等應倒入有蓋之鐵桶內。
4. 易燃易爆及危險物品，應隔離儲存。
5. 滅火器等消防設備周圍禁止堆放物品，並經常保持良好可用狀態。
6. 安全門、安全梯，應保持暢通，通道不可放置物品。
7. 了解滅火器使用法
 - A、乾粉滅火器使用法：
 - (1)拉開保險卡或保險絲。
 - (2)用力壓下壓蓋，刺破氣瓶。
 - (3)用手握緊噴嘴之開關壓板，乾粉即行射出。
 - B、海龍滅火器使用方法：
 - (1)使用噴嘴指向火焰。
 - (2)拉開保險絲或保險卡
 - (3)用力緊壓板機，氣體即噴射而出。

八、電氣設備

1. 保險絲燒毀時，絕不可改用不合適的保險絲或用電線、其他金屬代替保險絲。
2. 拆除或接裝保險絲以前，應先切斷所有電源。
3. 在修理電氣設備中，所切斷之開關必須懸掛明顯之標示牌，除負責修理者外，任何人不得將該標示牌取下，以免發生傷亡。
4. 電線上不得接裝過多之用電器具，以免因過載而發生火災。
5. 隨時檢修電氣設備，遇有重大電氣故障及電氣火災等，應切斷電源，並即聯絡當地電力公司。
6. 電線間、直線、分歧接頭及它線與器具間接頭，應確實接牢。
7. 發電室、變電室或受電室之電路附近，不得放置任何與電路無關物體或設備。
8. 不得使用未知規格之工業用電氣器具。

9. 非領有電匠執照或極具經驗之電氣工作人員，不得擔任電氣器材之裝設與保養(包括修理、換保險絲等)。
10. 發電室、變電室或受電室，非工作人員不得進入。
11. 開關之關閉應完全，如有鎖緊設備，應予操作後加鎖。
12. 拔卸電氣插頭時，應拉插頭處。
13. 切斷開關，應迅速確切。
14. 不得以濕手或濕操作棒操作開關。
15. 非職權範圍，不得擅自操作各項電氣設備。
16. 如遇電氣設備或電路著火，須用不導電滅火設備。
17. 電線電路如發生電線包覆有破裂，應即更換新品，以免發生災害。
18. 關閉開關時，發生火花現象，應確實查明原因。
19. 電氣機械運轉中，如發現有不正常情形時，應即報告主管人員，但如時間上不允許，應先切斷電源，切勿驚惶逃避，以免災害擴大。
20. 所有電氣設備外殼接地線，不得任意拆掉。
21. 所有電氣設備及電線電路維護，均應嚴格遵守電氣安全規章程序操作。

第五章 教育及訓練

第九條 為確保工作安全與健康，各場所負責人對所屬場所內人員應分別施以從事工作及預防災變所必要之安全衛生教育、訓練之義務：

- 一、職業安全衛生人員。
- 二、危險性機械、設備操作人員。
- 三、特殊作業人員。
- 四、一般作業人員。
- 五、其他經中央主管機關指定之人員。

第十條 每年新進學生必須接受至少三小時職前之安全衛生教育訓練，爾後每年應再接受至少三小時之相關教育訓練。

- 一、教育訓練課程如下：
 - (一)安全衛生相關法規概要（以與學生實驗工作有關之相關條文為限）。
 - (二)安全衛生概念及現場安全衛生規定。
 - (三)作業前、中、後之自動檢查、檢點事項。
 - (四)標準實驗操作技術與程序。
 - (五)緊急事故處理或避難事項。
 - (六)作業中應注意事項及危害預防方法。
 - (七)消防及急救常識暨演練。
 - (八)其他必要事項。
- 二、訓練時數
 - (一)新雇職工不得少於三小時。
 - (二)調換工作者不得少於三小時。
 - (三)對製造處理或使用危險物、有害物作業等人員工增加下列課程三小時；
 1. 危險物及有害物之通識計劃。
 2. 危險物及有害物之標示內容及意義。

3. 危險物及有害物之特性。
4. 危險物及有害物對人體健康之危害。
5. 危險物及有害物之使用、存放、處理及棄置等安全操作程序。
6. 緊急應變程序。
7. 物質安全資料表之存放取得方式。

第十一條 其他凡由有關法規規定須有證始得擔任之工作，應指派人員參如有關單位舉行之訓練。(含有機溶劑、特定化學物質、高壓氣體等作業在內)

第十二條 博、碩士研究生入學時，需修習「實驗室安全衛生」相關課程。

第六章 健康指導及管理措施

第十三條 在職人員一律依規定接受本校排定各項為維護人員健康，所實施之定期健康檢查。

第十四條 在職人員應依下列規定接受定期健康檢查：

- 一、年滿65歲以上者，每年定期檢查一次。
- 二、年滿40歲未滿65歲者，每三年定期檢查一次。
- 三、年齡未滿40歲者，每五年定期檢查一次。

第十五條 配合職業安全衛生及相關部門人員訪視現場，辦理下列事項：

- 一、辨識與評估工作場所環境及作業之危害。
- 二、提出作業環境安全衛生設施改善規劃之建議。
- 三、調查人員健康情形與作業之關連性，並對健康高風險人員進行健康風險評估，採取必要之預防及健康促進措施。
- 四、提供復工人員之職能評估、職務再設計或調整之諮詢及建議。

第十六條 相關人員經一般體格檢查、特殊體格檢查、一般健康檢查、特殊健康檢查或健康追蹤檢查後，應採取下列措施：

- 一、參採醫師建議，告知人員，並適當配置職工於工作場所作業。
- 二、對檢查結果異常之職工，應由醫護人員提供其健康指導；其經醫師健康評估結果，不能適應原有工作者，應參採醫師之建議，變更其作業場所、更換工作或縮短工作時間，並採取健康管理措施。
- 三、將檢查結果發給受檢人員。
- 四、將受檢人員之健康檢查紀錄彙整成健康檢查手冊。

第七章 急救及搶救

第十七條 凡在工作時意外受傷，如清理物品時，不幸刺傷或突然身體不適時，應立即前往(送至)急診室處理。

一、一般性急救

1. 在醫護人員抵達前受過急救訓練之員工應立刻對傷患作適當處理，避免導致更嚴重的後果。
2. 在沒有確定受傷之實情前，應將傷患平臥，可防止昏厥與休克。
3. 如傷患面色發紅，應將頭部墊高，如嘔吐則將頭部轉向一邊，以防窒

息。

4. 需要時可用棉被、衣物等保持傷患之體溫，以防止休克發生。
5. 速召救護車或用擔架運送傷患至醫療處所或速請醫護人員。
6. 急救者的責任在於救命、防止傷勢或病情轉惡、保持傷患安靜及舒適，以靜候醫護人員到來。
7. 在場急救者，應協助傷患述說病情原因等，以幫助醫護人員治療及診斷。
8. 擔任急救者必須：
 - (1) 不驚慌失措。
 - (2) 鼓足自信。
 - (3) 給予遭意外傷害或急病者之立即和臨時性的照料，直至專業救護人員來到或能得到醫師的診治時止。

二、外傷急救

1. 外部創傷之種類分為破開傷、擦傷、切傷、撕裂傷等，就醫前應注意止血及防止細菌進入傷口。
2. 外傷的急救是以消毒之紗布敷蓋於傷口處，急救人員應有消毒觀念，手指不能直接接觸傷口，清洗消毒應由醫護人員行之。
3. 止血法應先查看血色，如為鮮紅色則表示主動脈血，應在心臟及傷口間用帶束緊，暗紅色為靜脈血，應在傷口及身體外緣之間束緊。

三、昏倒急救

1. 昏倒又稱休克，起因如站立太久、受驚、悸動、飢餓、疼痛或劇烈工作等，處理昏倒首先明瞭其為貧血或充血性分別處理之。
2. 貧血性昏倒，特徵為臉色蒼白，四肢冰冷，處理法為使其頭部低腳高，斜躺在床上。
3. 充血性昏倒，特徵為面紅耳赤，有時痰聲滾滾，處理法為將患者頭高腳低斜坐在椅子上。

四、觸電急救

1. 觸電都會發生「假死」的現象，呼吸和心臟停止活動，首先須使其離開電源，千萬不可用赤裸的手去拉，可用乾燥之竹竿、木棒等將患者移開。
2. 然後送至通風良好地方，解開上衣、仰臥，稍抬頭部再用氧氣或進行人工呼吸，有時甚至須經三、四小時直至醫師到來。
3. 甦醒後，如有電傷，則按灼傷處理之。

五、灼傷急救

1. 急救時，如為輕度灼傷其皮膚未破時，則塗以消毒凡士林油膏，橄欖油等。
2. 深度者，應即刻送醫，急救者僅將灼傷面覆以浸有生理食鹽水之消毒紗布即可。

六、呼吸之急救：(口對口人工呼吸法)

1. 使遇難者仰臥，頭向後傾。
2. 大拇指伸進遇難者上下齒之間，打開口腔用力使下顎突出直至下齒高於上齒。
3. 搶救者用右手大拇指捏住遇難者鼻孔。

4. 搶救者作深呼吸後，把口緊緊對準遇難者之口，向遇難者的口吹進空氣。
5. 搶救者把空氣吹進遇難者之肺部時，必須注意遇難者的胸部有無隆起，以便確定氣道是否暢通無阻。
6. 搶救者把嘴移開，讓遇難者吐氣後(胸部落下)，重覆吹進空氣，每分鐘應重複十二次，直至遇難者被救活為止，如遇難者為小孩時，則應增加至每分鐘二十次。

七、骨折之急救

1. 骨折的急救：

先把骨折的肢體，以正確的「附木」綁紮方法加以固定，綑縛時應鬆緊適度。

2. 鎖骨骨折的急救：

於傷側腋下墊以大而厚的棉布摺墊，然後以三角巾將傷側上肢固定。

3. 脊椎骨骨折的急救：

應絕對禁止傷者坐起，並勿使傷者抬頭，如係頸椎骨折或骨折部位未明，應使傷者仰臥平躺木板上，如係頭部以下之脊椎骨折則應使傷者俯臥，搬運時用擔架水平移動，不可傾斜或顛倒。

4. 肋骨骨折的急救：

使用絆創膏，以重疊貼合之方式於傷口處加以固定，注意防止昏厥的發生，並趕緊用擔架送醫院醫治。

八、化學藥物中毒之急救

1. 吸入性中毒急救：

- (1) 除非有適當防護裝備，且熟悉空氣呼吸器及救生繩使用方法，否則不可試圖進入施行搶救，以免自己跟著中毒。
- (2) 將患者搬運至空氣新鮮處。
- (3) 倘呼吸停止或不規則時，即施行人工呼吸。
- (4) 速請醫師到現場或送醫院診治。
- (5) 使患者保持溫暖及寧靜。
- (6) 不給予任何酒精飲料。

2. 化學物或其他異物掉入眼內之急救：

- (1) 即將眼翻開用清水輕輕沖洗(配戴隱形眼鏡者需先行取出。)
- (2) 沖洗至少15分鐘以後，速將患者送醫診治(勿用硼酸或其他化學藥物或油膏)。

3. 化學物灼傷：

- (1) 立即用大量水沖洗，儘速沖洗是減少傷害的重要步驟。
- (2) 一面脫衣、一面繼續用大量水沖洗。
- (3) 取清潔的覆蓋物(浸有生理食鹽水或水)將燒傷部蓋起。
- (4) 倘灼傷面積廣泛，則令患者臥下，安置其頭、胸部略低於身體其他部位，如可能，宜將兩腿抬高。
- (5) 傷者神志清醒，如可以吞嚥，則給予足量的非酒精性飲料。
- (6) 除小塊皮膚發紅的輕度灼傷外，所有灼傷均應請醫師診治。

九、輻射線傷害急救

1. 輻射線的防護受時間、距離和掩蔽等的影響。與輻射源之間存在的物質愈多，將愈為安全。同樣對你與輻射源之間相隔的距離愈遠，又能儘速做好掩蔽也愈安全。
2. 人員應儘速自動撤離或搬離輻射源處。
3. 人員或器物，若非暴露於中子線，不會變成輻射性。非戰時的輻射暴露，並不致使人員和器物變成輻射性。
4. 受到輻射物質污染的表面，可用肥皂(或其他清潔劑)和大量水洗去，如同洗去塵垢一樣。
5. 遇核子戰爭時，應遵照民防當局之指導和訓令行事。
6. 輻射病之徵象包括噁心、嘔吐和頭痛。但這些徵象，有時也可能是因為神經過分緊張或情緒煩亂所致。
7. 不接近未加掩蔽的輻射源，不進入確知或懷疑受到輻射污染之地區。
8. 勿食和勿飲確知或懷疑受到輻射物質污染地區的任何東西。

第十八條 對特殊工作造成傷害時，除送醫及反映上級處理外，應製作書面報告送安全衛生委員會。

第十九條 發生意外事故如火災、地震大災害等發生時，應立即以館內線電話緊急廣播通報，並作必要之搶救措施。

第八章 防護設備之準備、維持與使用

第二十條 實驗室必備之手套、擦手紙、肥皂、清潔劑、隔離衣帽、口罩、鞋及各種防護衣物等物品，若有短缺或破損時應立即補充。

第二十一條 機械儀器等操作單位之安全面罩、安全鏡、防護衣(含耐高低溫、耐酸鹼)套、鞋、安全帽、耳塞、口罩等，如有短缺或不堪用時，立即補充。

第二十二條 對處理特殊化學及有害物，實驗室現有防護衣、手套、面具、護目鏡(須耐酸鹼及現有之沖眼設備與緊急淋浴設備等)，如有故障或損壞時應立即修護，以保持良好可用狀態。

第二十三條 各場所現有之消防安全及逃生設備等若有短缺或損壞時，應提出補充或修護。

第二十四條 研究人員因工作必須使用個人防護裝備時，應依規定切實使用，並做必須之檢點與維護，藉以維持性能、確保作業安全。

第九章 事故通報及報告

第二十五條 各場所工作人員在工作中，受到任何較嚴重之傷害時應立即向其場所負責人報告。各場所應於六小時內反映至安全衛生小組(若在上班時間外或例假日則先行向駐警隊、軍訓室教官及所長報備)。

第二十六條 各場所如發生職業災害，負責人應即採取必要的急救、搶救等措施，並會同職工代表實施調查，分析及作成紀錄。

各場所發生下列職業災害之一時，應於立即通知環境保護及安全衛生中心，並於八小時內報告勞動檢查機構。

現場非經司法機關或檢查機構許可，不得移動或破壞。

- 一、發生死亡災害者。
- 二、發生災害之罹災人數在三人以上者。
- 三、發生災害之罹災人數在一人以上，且需住院治療。
- 四、其他經中央主管機關指定公告之災害。

第二十七條 室內若發生前條之重大災害時，應由安全衛生小組於立即向安全衛生管制中心報備。

第二十八條 工作場所發生職業災害，由該主管場所單位會同安全衛生小組成員實施災害調查，擬定防止對策陳報所長核定，公告實施。

第十章 其他

第二十九條 本守則由本所專任教師及學生代表組成安全衛生小組訂定經所務會議通過，向勞動機構備查，公告實施。修訂時亦同。

本人已閱讀「國立中興大學基因體暨生物資訊學研究所安全衛生工作守則」，並願遵守本守則之規定。

Acknowledgment of Safety and Health Work Guidelines

I have read and understood the "Safety and Health Work Guidelines of the National Chung Hsing University Institute of Genomics and Bioinformatics" and agree to comply with all provisions of these guidelines.

實驗場所名稱：_____

實驗場所負責人：_____

Laboratory Name

Laboratory Supervisor

| 姓名 Name | 簽署日期 Signature Date | 姓名 Name | 簽署日期 Signature Date |
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National Chung Hsing University Institute of Genomics and Bioinformatics Safety and Health Work Guidelines

Approved by the Institute Affairs Meeting on April 20, 2015

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National Chung Hsing University Institute of Genomics and Bioinformatics Safety and Health Work Guidelines

Approved by the Institute Affairs Meeting on April 20, 2015

Chapter I: General Provisions

Article 1

To safeguard the safety and health of faculty, staff, and students, these Safety and Health Work Guidelines are established in accordance with Article 34 of the Occupational Safety and Health Act and Article 41 of its Enforcement Rules.

Article 2

These guidelines shall apply to all faculty, staff, and students of the institute, as well as non-affiliated individuals conducting experimental work in the institute's laboratories and training facilities.

Chapter II: Safety and Health Management and Responsibilities at All Levels

Article 3

In accordance with Article 23 of the Occupational Safety and Health Act, the institute shall establish a Safety and Health Committee to perform the following tasks:

1. Develop occupational accident prevention plans and guide related laboratories in their implementation.
2. Plan and supervise the safety and health management of associated laboratories.
3. Plan and oversee the inspection and checking of safety and health facilities.
4. Guide and monitor relevant personnel in conducting inspections, including routine, periodic, focused checks, and work environment assessments.
5. Plan and execute safety and health education and training.
6. Supervise and track relevant personnel in coordinating with the university for health examinations and management.
7. Supervise occupational accident investigations and processing, and compile occupational accident statistics.
8. Provide laboratory safety and health management information and recommendations to the department head.
9. Manage other safety and health issues related to laboratories.

Article 4

The term "responsible person" as referred to in these guidelines is defined as follows:

1. For shared instruments, equipment, and facilities, the responsible person is the institute director.
2. For teaching and research laboratories, the responsible person is the user, manager, or supervising instructor of the respective facilities.

The institute director shall oversee the implementation of safety and health maintenance responsibilities across all laboratories, including:

1. Supervising relevant personnel in conducting routine, periodic, and focused inspections, as well as work environment assessments.
2. Supervising personnel in investigating sources of pollution and accidental incidents, and analyzing reports on incident causes.
3. Investigating laboratory environments with potential hazards.
4. Establishing and disseminating Standard Operating Procedures (SOPs) for operations with potential risks.
5. Supervising resource recycling efforts.
6. Developing disaster prevention measures for research laboratories.
7. Supervising other tasks planned by the Safety and Health Committee.

The responsible persons for each facility shall oversee and execute the following safety and health matters:

1. Investigating hazardous chemical substances commonly used in the laboratory.
2. Implementing safety and health management tasks.
3. Supervising periodic inspections, focused checks, and operational checks, as well as other related inspections.
4. Conducting regular or ad-hoc inspections.
5. Proposing improvements to work methods.

6. Educating students on the functionality and proper use of safety protection equipment.
7. Guiding students to perform experiments in accordance with standard operating procedures.

Chapter III: Maintenance and Inspection of Machinery, Equipment, and Tools

Article 5

Responsible persons for each facility shall ensure the installation of safety and health-compliant machinery, equipment, or tools to address the following concerns:

1. Prevention of hazards caused by machinery, equipment, or tools.
2. Prevention of hazards caused by explosive or flammable substances.
3. Prevention of hazards caused by electricity, heat, or other energy sources.
4. Prevention of hazards arising from quarrying, excavation, loading, unloading, transport, stacking, or logging operations.
5. Prevention of hazards in work environments prone to falling, object projection, or collapse.
6. Prevention of hazards caused by high-pressure gases.
7. Prevention of hazards caused by raw materials, gases, vapors, dust, solvents, chemicals, toxic substances, or oxygen-deficient air.
8. Prevention of hazards caused by radiation, extreme temperatures (high or low), ultrasonic waves, noise, vibration, or abnormal air pressure.
9. Prevention of hazards arising from monitoring instruments or precision operations.
10. Prevention of hazards caused by waste gas, waste liquid, residues, or other waste materials.
11. Prevention of hazards caused by water damage or fire.
12. Prevention of hazards caused by animals, plants, or microorganisms.
13. Prevention of hazards caused by pathways, floors, or stairs.
14. Prevention of hazards due to insufficient ventilation, lighting, illumination, insulation, or moisture-proofing.

Article 6

Responsible persons must comply with the following regulations regarding the inspection, maintenance, and upkeep of listed facilities, machinery, equipment, or tools:

1. **Inspection Methods:** Inspections shall be categorized into regular inspections, focused inspections, and operational checks, with implementation plans developed and executed by the responsible persons of each facility:
 - **Regular Inspections:** Daily, monthly, or annual inspections and maintenance of instruments and equipment.
 - **Focused Inspections:** Inspections conducted after initial use, disassembly, modification, or repair of equipment.
 - **Operational Checks:** Daily or pre-operation inspections of machinery and equipment to ensure safety and functionality.
2. **Inspection Records:** Detailed records of all inspections must be maintained, with one copy retained by the facility and another submitted to the institute office for review. Inspection records shall include:
 - Inspection date (year, month, day).
 - Inspection items and methods.
 - Inspection results, including identified hazards and hazard analysis.
 - Improvement measures taken based on inspection and risk assessment results, along with periodic reviews of their appropriateness.
 - Signatures of inspection personnel and the responsible person for each facility.
3. **Machinery or Equipment with Potential Hazards:** Machinery or equipment identified as hazardous may not be used unless inspected and approved by a labor inspection agency or a designated inspection institution authorized by the central competent authority. Equipment exceeding the stipulated usage period must pass re-inspection before further use is allowed.

Chapter IV: Work Safety and Health Standards

Article 7: General Safety and Health Work Guidelines

1. Comply with the safety and health precautions established for each laboratory and facility.
2. Participate in safety and health education and training relevant to your work.
3. Undergo physical and health examinations as required by university regulations.
4. Smoking, drinking alcohol, chewing betel nut, chewing gum, and consuming other food or beverages that may disrupt work are strictly prohibited in laboratories.
5. Ensure that no items are stored in safety doors, passageways, stairways, or entry/exit points in the workplace.

6. Familiarize yourself with the location and proper usage of fire extinguishers and firefighting equipment.
7. Unauthorized use of electrical appliances not specified by the institute is prohibited.
8. Be aware of the escape and evacuation routes in all work areas.
9. In the event of a fire or similar emergencies, do not use elevators for evacuation.
10. Ensure that unused electrical appliances, gas supplies, and water taps are turned off when leaving the workplace.
11. Immediately report any persons, incidents, or objects posing a safety or health hazard within the institute to the relevant personnel for urgent action.

Article 8: Professional Safety and Health Work Guidelines

1. General Professional Work Guidelines

1. Adhere to all safety regulations and safe work practices.
2. Operate experiments or instruments following standard operating procedures (SOPs).
3. Apply standard protective measures (e.g., wearing masks and gloves) when preparing or handling chemicals.
4. Handle accidental contact with hazardous chemicals cautiously, following proper procedures based on the chemical's nature.
5. Report all incidents, regardless of injury, to the responsible personnel and the institute director.
6. Smoking and littering are strictly prohibited in work areas.
7. Dispose of sharp objects, such as broken glass, according to classification guidelines.
8. Ensure that water, electricity, and gas are turned off before leaving the workspace.

2. Specific Machinery Operations Guidelines

(1) High-Pressure Gas Cylinder Operations

High-pressure gas cylinders, whether filled or empty, must be handled as follows:

1. Ensure the correct usage of the cylinder before operation.
2. Label the gas type clearly and prohibit unauthorized refilling or transfer.
3. Do not alter or remove external markings or paint.
4. Handle cylinders carefully to avoid collisions or damage.
5. Properly manage and display cylinder condition tags.
6. Store cylinders below 40°C in a stable and secured position.
7. Keep flammable or volatile materials at least 2 meters away from gas cylinders.
8. Ensure gas outlets are free from oil contamination.
9. Regularly inspect hoses and connectors for leaks, proper tightness, or signs of wear and tear.
10. Open valves and taps slowly.
11. Monitor pressure and flow changes closely.
12. Keep the cylinder wrench attached and handle it carefully to avoid frostbite.

(2) High-Pressure Sterilizer Operations

1. Register or reserve usage and be thoroughly trained in operation procedures. For first-time users, guidance from experienced personnel is required.
2. Purchase equipment certified as compliant with manufacturing safety standards and conduct regular inspections. Report discontinuation to inspection authorities.
3. Address any abnormalities immediately, verify that safety valves and gauges are in proper condition, and ensure all safety equipment is functional before use.
4. Add water to the specified level before operation.
5. Load items for sterilization, secure the handle, and start the power supply. Follow automatic processes without setting a timer.
6. Use reverse osmosis water for cleaning and sterilization to prevent scaling.
7. Clean the sterilizer thoroughly after each use.
8. Turn off the main power supply after use.
9. Perform regular cleaning and maintenance of the sterilizer.
10. Monitor pressure during sterilization. If it exceeds the warning level, turn off the main power and disconnect the plug. Do not resume use until repairs ensure safety.

(3) Centrifuge Operations

1. Register or reserve usage and be well-versed in operation procedures. First-time users require guidance from experienced personnel.
2. Balance samples to within 0.1 grams using a balance scale before placing them in the centrifuge.
3. Insert samples symmetrically into the rotor and secure the lid tightly.

4. Operate at no more than 90% of the centrifuge's maximum rotation speed. Set appropriate temperature, speed, duration, and code number.
5. Wait for the centrifuge to come to a complete stop before opening the lid to retrieve items.
6. Clean the chamber thoroughly after use.

3. Laboratory Safety and Health Guidelines

(1) General Laboratory Safety and Health Work Guidelines

1. Conduct a thorough safety assessment before starting any experiment. Fully understand the safety status of the equipment being used, identify potential hazards in the process, propose preventive measures, and adopt appropriate protective actions.
2. Wear laboratory coats for all chemical-related experiments. Use gloves when necessary.
3. Laboratory personnel working with highly corrosive chemicals (e.g., sulfuric acid, hydrochloric acid, sodium hydroxide) or toxic chemicals (e.g., EtBr, phenol, cyanides) must be familiar with general safety precautions and handling procedures.
4. Laboratories must be equipped with safety equipment such as fire extinguishers, ventilation systems, emergency showers, eye wash stations, protective masks, gloves, and necessary first-aid supplies. Personnel should know their locations and usage methods.
5. Avoid wearing contact lenses in biochemical laboratories, as organic solvents or volatile substances can increase osmotic pressure and harm the eyes.
6. In case of chemical splashes or foreign substances entering the eyes, flush immediately with water or submerge the eyes in water for at least 15 minutes. Seek medical treatment as necessary. For severe incidents, broadcast an emergency alert within the institute.
7. In the event of broken glass or other serious accidents, the person responsible should remain calm, mark the contaminated area, or place pre-prepared warning signs to alert others. Evacuate the area immediately and wash thoroughly in the emergency shower.
8. Follow these steps to clean up the site:
 - o Wear a lab coat and gloves.
 - o Mark the contaminated area.
 - o Prevent the contamination from spreading.
 - o Clean progressively from the outside to the inside.
9. Label hazardous and toxic chemicals according to the Hazard Communication Standards or relevant environmental protection laws.
10. Manage chemicals properly. Store hazardous, flammable, and toxic substances in designated, locked cabinets. Dispose of hazardous waste and expired chemicals according to regulations. Arbitrary disposal is prohibited.
11. Ether must not be stored in refrigerators. Used ether must be sealed tightly and placed in designated areas.
12. Do not store flammable or explosive chemicals near heating equipment such as ovens and distillers.
13. Refrigerators or freezers storing chemicals must not contain food or beverages.
14. Handle hazardous, toxic, or carcinogenic substances while wearing gloves and masks and always operate within a fume hood.
15. For experiments with explosion risks, place a safety shield in front of the operator or take other effective explosion-proof measures.
16. Dispose of specimen, reagent waste, and liquids following standard procedures or store them appropriately. Do not pour them down the sink arbitrarily.
17. Smoking and consuming food that disrupts work are prohibited in laboratories.
18. When alarms sound, immediately shut off gas supplies and evacuate the laboratory promptly.
19. Do not conduct hazardous experiments alone outside of working hours. Ensure someone is present to monitor activities.
20. Display emergency contact numbers prominently in each laboratory.

(2) Radiation Laboratory Safety and Health Work Guidelines

1. Radiation laboratories must display appropriate radiation warning signs and notices.
2. Radioactive materials and equipment capable of emitting ionizing radiation must not be used without a license issued upon inspection and approval by the Atomic Energy Council.
3. Personnel handling radioactive materials and operating ionizing radiation equipment must undergo ionizing radiation protection training and hold a license issued by the Atomic Energy Council.
4. Record the entry and exit of radioactive materials in detail and store them securely in designated locked locations.

5. Wear protective clothing and gloves during work and use proper shields. Before leaving the work area, ensure the workspace and personal clothing are uncontaminated. Place work attire and gloves in designated areas and thoroughly wash hands.
6. Smoking, eating, storing food, and using cosmetics are strictly prohibited in radiation laboratories.
7. Never use mouth suction for radioactive materials.
8. Individuals with open wounds are prohibited from handling radioactive materials.
9. Prevent spills or leaks of radioactive substances.
10. Radioactive test tubes and tools should be placed on absorbent paper trays. Radioactive paper or waste should be disposed of in radioactive waste containers.
11. Contaminated tools must be thoroughly cleaned or stored until the radiation decays to near background levels before reuse.
12. In the event of an accident, follow these procedures:
 - (1) Stay calm.
 - (2) Clearly mark the contaminated area or place pre-prepared warning signs to alert others.
 - (3) Remove contaminated clothing, replace it with clean garments, and ensure no contamination before leaving.
 - (4) If the skin is contaminated, use the emergency wash station for decontamination.
13. To handle a contaminated site, follow these steps:
 - (1) Wear a lab coat, gloves, and use protective shields.
 - (2) Conduct thorough contamination detection.
 - (3) Mark the contaminated area.
 - (4) Clean progressively from the outside to the inside.
 - (5) If contamination cannot be removed, cover with appropriate shields or isolating materials depending on the radiation type.
14. Conduct safety inspections of ionizing radiation equipment before use. Maintain inspection records for future reference.
15. Submit periodic records of radioactive materials and ionizing radiation equipment to the Atomic Energy Council. Allow the council to conduct audits as needed.
16. Radioactive materials below the legally exempt limit may be excluded from regulation, subject to compliance with relevant laws.
17. Follow the Radiation Protection Committee's guidelines for waste segregation, timely waste processing, and regular contamination detection (wipe tests).

4. Waste Disposal Safety and Health Work Guidelines

1. Infectious Waste Disposal

1. Strictly segregate infectious waste. Hazardous items such as needles, syringes, petri dishes, test tubes, glass slides, and scalpels must be placed in designated containers, labeled appropriately, and securely transported for disposal.
2. Toxic or corrosive waste must be stored in specific containers and reported to the responsible personnel for proper handling.
3. Infectious waste must be sterilized before disposal.
4. When placing infectious waste bags into a high-temperature sterilizer, avoid compressing them by hand to prevent needle injuries.
5. Unless in special circumstances, all daily waste should be processed on the same day.
6. Wash hands immediately after handling waste disposal.

2. Organic Solvent Work Guidelines

1. Containers holding organic solvents must be sealed promptly to prevent vapor leakage.
2. Ventilation systems in the workplace must operate continuously during working hours.
3. Wear protective gloves to prevent direct skin contact with solvents while handling organic solvents.
4. Store organic solvents in designated, locked areas. Clearly label bottles with the type and name of the solvent, and minimize storage quantities.
5. Dispose of organic solvent waste in designated storage containers. Arbitrary disposal is prohibited.
6. Conduct at least two annual inspections of localized ventilation systems installed at the workplace, as required. Perform focused inspections when starting use, dismantling, modifying, or repairing the equipment, and maintain inspection records.
7. Workplace supervisors must inform employees about the toxicity of organic solvents, operational precautions, and emergency response measures.
8. In cases of acute solvent poisoning causing unconsciousness, immediately move the affected person to

a well-ventilated area, administer first aid, and promptly notify the responsible personnel.

6. Computer Work Safety Guidelines

1. Ensure the power supply meets specifications, and check that plugs and sockets are firmly connected. Inspect power and transmission cables for damage or fraying and ensure the equipment is dry to prevent electric shock accidents.
2. Verify that the placement of the computer and peripheral devices is stable and that supporting equipment is reliable and secure.
3. Regularly clean the terminal screen and protective devices (e.g., screen filters or covers) to remove dust and fingerprints, maintaining cleanliness.
4. Test the terminal functions, ensuring keys on the keyboard respond appropriately and the screen displays characters without flickering. Adjust brightness and contrast as needed. Replace or repair screens showing aging or poor imaging performance.
5. Adjust the height and angle of desks, chairs, and screens so that the eyes are slightly above the top edge of the screen and maintain a distance of 45–72 cm. Ensure the desk, chair, and keyboard height suit the individual's comfort and ergonomic needs.
6. Minimize screen glare by adjusting its angle and position. Ensure appropriate spacing between the screen and other personnel in the workspace.
7. Take a 15-minute break after every two hours of continuous computer use.
8. If unusual odors, smoke, or operational issues are detected, turn off the power immediately and report the issue to the maintenance department.

7. Fire Safety Equipment Guidelines

1. Fire extinguishers must undergo regular maintenance and inspections. Refill extinguishing agents as necessary, record maintenance dates, and sign off on inspections. All employees must be trained in the proper use of fire safety equipment to respond effectively during emergencies.
2. Conduct routine checks and maintenance of mechanical and electrical equipment to prevent overheating, fires, or sparks.
3. Dispose of flammable waste (e.g., oily rags, waste paper) in covered metal containers.
4. Store flammable, explosive, and hazardous materials separately in isolated areas.
5. Keep the area around fire extinguishers and other fire safety equipment clear and ensure they are in usable condition at all times.
6. Ensure emergency doors and staircases are unobstructed, and no items are placed in passageways.
7. Familiarize personnel with the proper use of fire extinguishers:
 - **Dry Powder Fire Extinguisher:**
 1. Pull out the safety pin or fuse.
 2. Press down firmly to puncture the gas cylinder.
 3. Grip the nozzle switch handle and press to release the dry powder.
 - **Halon Fire Extinguisher:**
 1. Aim the nozzle at the fire.
 2. Pull the safety pin or fuse.
 3. Squeeze the trigger firmly to release the extinguishing agent.

8. Electrical Equipment Safety Guidelines

1. Do not replace a blown fuse with an inappropriate fuse, wire, or other metal substitutes.
2. Turn off all power supplies before removing or installing fuses.
3. When repairing electrical equipment, the disconnected switch must be marked with a clear warning tag. Only the repair personnel are allowed to remove the tag to prevent accidents.
4. Avoid overloading electrical wires by connecting too many devices, as this may lead to a fire.
5. Regularly inspect and maintain electrical equipment. For major electrical faults or electrical fires, cut off the power supply immediately and contact the local power company.
6. Ensure that electrical wires, straight connections, branch joints, and connections between wires and appliances are securely fastened.
7. Do not store unrelated objects or equipment near circuits in power generation rooms, transformer rooms, or receiving rooms.
8. Do not use industrial electrical appliances with unknown specifications.
9. Only licensed electricians or highly experienced personnel may install and maintain electrical equipment, including repairing and replacing fuses.
10. Non-staff members are prohibited from entering power generation rooms, transformer rooms, or receiving rooms.

11. Switches must be fully turned off and, if equipped with locking mechanisms, locked after operation.
12. When unplugging electrical cords, pull from the plug itself rather than the cord.
13. Switches must be turned off quickly and accurately.
14. Do not operate switches with wet hands or wet tools.
15. Do not operate any electrical equipment outside your scope of authority.
16. Use only non-conductive firefighting equipment for electrical fires.
17. Replace damaged or cracked insulation on electrical wires immediately to prevent accidents.
18. Investigate and identify the cause if sparks occur when turning off a switch.
19. If electrical machinery operates abnormally, report it to a supervisor immediately. If time does not permit, cut off the power supply first to prevent further damage. Do not panic or flee.
20. Grounding wires for electrical equipment must not be removed arbitrarily.
21. Strictly follow electrical safety regulations and procedures when maintaining electrical equipment and circuits.

Chapter V: Education and Training

Article 9

To ensure workplace safety and health, responsible persons for each facility are obligated to provide necessary safety and health education and training to personnel under their supervision, focusing on work-related tasks and disaster prevention. The training applies to the following categories:

1. Occupational safety and health personnel.
2. Operators of hazardous machinery and equipment.
3. Personnel engaged in specialized operations.
4. General workers.
5. Other personnel as designated by the central competent authority.

Article 10

All newly admitted students must complete at least three hours of pre-job safety and health education and training. Subsequently, students must participate in at least three hours of related training annually.

1. Education and Training Curriculum:

- (1) Overview of relevant safety and health regulations (limited to provisions related to students' experimental work).
- (2) Safety and health concepts and on-site safety and health regulations.
- (3) Pre-, during-, and post-operation self-inspection and checklist procedures.
- (4) Standard experimental operation techniques and procedures.
- (5) Emergency incident handling and evacuation procedures.
- (6) Precautions and hazard prevention methods during operations.
- (7) Basic firefighting and first aid knowledge, including drills.
- (8) Other necessary topics.

2. Training Hours:

- (1) Newly hired employees must receive no less than three hours of training.
- (2) Employees transferring to new roles must receive no less than three hours of training.
- (3) For personnel involved in manufacturing, handling, or using hazardous or harmful substances, an additional three hours of training must be included, covering the following:
 1. General knowledge of hazardous and harmful substances.
 2. Content and significance of hazardous and harmful substance labels.
 3. Properties of hazardous and harmful substances.
 4. Health hazards posed by hazardous and harmful substances.
 5. Safe operation procedures for the use, storage, handling, and disposal of hazardous and harmful substances.
 6. Emergency response procedures.
 7. Methods for accessing and storing Material Safety Data Sheets (MSDS).

Article 11

For any work specified by relevant regulations that requires certification to be performed, personnel must be assigned to participate in training sessions organized by relevant authorities. This includes operations involving organic solvents, specific chemical substances, high-pressure gases, and similar tasks.

Article 12

All master's and doctoral students are required to complete courses related to "Laboratory Safety and Health" upon enrollment.

Chapter VI: Health Guidance and Management Measures

Article 13

All employees must undergo periodic health examinations scheduled by the university to ensure the maintenance of their health.

Article 14

Employees must participate in periodic health examinations according to the following regulations:

1. Employees aged 65 years or older must undergo annual health examinations.
2. Employees aged 40 to 65 years must undergo health examinations every three years.
3. Employees under the age of 40 must undergo health examinations every five years.

Article 15

In coordination with occupational safety and health personnel and related department visits to workplaces, the following actions must be undertaken:

1. Identify and evaluate workplace environmental and operational hazards.
2. Propose recommendations for improving workplace safety and health facilities.
3. Investigate the relationship between employees' health conditions and their work, conduct health risk assessments for high-risk individuals, and implement necessary preventive and health promotion measures.
4. Provide consultation and recommendations for functional assessments, job redesign, or adjustments for employees returning to work.

Article 16

After general physical examinations, special physical examinations, general health examinations, special health examinations, or health follow-up checks, the following measures must be implemented:

1. Follow the physician's recommendations to inform employees and assign them appropriately to suitable tasks in the workplace.
2. For employees with abnormal examination results, medical personnel should provide health guidance. If the health evaluation by a physician deems the employee unfit for their current role, adjustments should be made in line with the physician's recommendations, such as changing their work location, modifying their tasks, or reducing working hours, along with health management measures.
3. Provide the examination results to the examined individuals.
4. Compile the health examination records into health examination booklets for the examined individuals.

Chapter VII: First Aid and Emergency Rescue

Article 17

In the event of an accident or sudden illness during work, such as being injured while handling items or experiencing sudden discomfort, the individual must immediately proceed to (or be taken to) the emergency room for treatment.

1. General First Aid Guidelines:

1. Employees trained in first aid should immediately provide appropriate care to the injured person before medical personnel arrive to prevent further harm.
2. If the severity of the injury is unclear, the injured person should be placed in a supine position to prevent fainting or shock.
3. If the injured person appears flushed, elevate their head. If vomiting occurs, turn their head to the side to prevent suffocation.
4. Use blankets, clothing, or other materials to maintain the injured person's body temperature if needed to prevent shock.
5. Quickly summon an ambulance or use a stretcher to transport the injured person to a medical facility or immediately call for medical personnel.
6. The responsibility of the first aider is to save lives, prevent the injury or illness from worsening, and keep the injured person calm and comfortable until medical personnel arrive.
7. The first aider present should assist the injured person in explaining the cause of the injury or illness to help medical personnel with diagnosis and treatment.
8. A first aider must:
 - (1) Stay calm and composed.
 - (2) Act with confidence.
 - (3) Provide immediate and temporary care to the injured or ill person until professional medical personnel arrive or a doctor can provide treatment.

2. First Aid for External Injuries

1. Types of external injuries include open wounds, abrasions, cuts, and lacerations. Before medical treatment, focus on stopping the bleeding and preventing bacteria from entering the wound.
2. For external injuries, apply sterilized gauze over the wound. First aid personnel should observe hygiene protocols, ensuring no direct contact between their hands and the wound. Cleaning and disinfecting the wound should be performed by medical professionals.
3. To stop bleeding, determine the type of bleeding based on the color of the blood:
 - Bright red blood indicates arterial bleeding. Apply a tourniquet between the heart and the wound.
 - Dark red blood indicates venous bleeding. Apply a tourniquet between the wound and the body's extremities.

3. First Aid for Fainting

1. Fainting, also known as shock, may result from prolonged standing, fright, palpitations, hunger, pain, or strenuous work. Treatment depends on whether it is caused by anemia or congestion.
2. For **anemic fainting** (characterized by pale complexion and cold extremities), position the patient with their head lower than their feet, lying diagonally on a bed.
3. For **congestive fainting** (characterized by flushed face and noisy breathing), position the patient with their head higher than their feet, sitting diagonally in a chair.

4. First Aid for Electric Shock

1. Electric shock often causes a "suspended animation" state where breathing and the heartbeat stop. The first step is to remove the person from the power source. Do not use bare hands; use dry bamboo sticks, wooden rods, or other non-conductive materials to move the person.

2. Transport the victim to a well-ventilated area, loosen clothing, place them on their back with their head slightly elevated, and provide oxygen or artificial respiration as needed. In some cases, resuscitation may need to be continued for 3-4 hours until medical help arrives.
3. If burns are present following resuscitation, treat them as per burn care guidelines.

5. First Aid for Burns

1. For mild burns where the skin is unbroken, apply sterilized petroleum jelly, olive oil, or similar ointments.
2. For severe burns, seek immediate medical attention. First aid should involve covering the burn area with sterilized gauze soaked in saline solution.

6. First Aid for Respiratory Emergencies (Mouth-to-Mouth Resuscitation)

1. Lay the victim on their back with their head tilted backward.
2. Use your thumb to open the victim's mouth by pushing the lower jaw forward until the lower teeth are above the upper teeth.
3. Pinch the victim's nostrils shut with your thumb and forefinger.
4. After taking a deep breath, place your mouth tightly over the victim's mouth and blow air into their lungs.
5. Observe whether the victim's chest rises to ensure the airway is open.
6. Remove your mouth to allow the victim to exhale (chest falls) and repeat the process. Perform this at a rate of 12 times per minute for adults or 20 times per minute for children, continuing until the victim is revived.

7. First Aid for Fractures

1. General First Aid for Fractures:

Immobilize the fractured limb using a proper splinting technique. Ensure that the binding is neither too tight nor too loose.

2. First Aid for Clavicle Fractures:

Place a thick, folded pad under the injured side's armpit and secure the injured arm with a triangular bandage.

3. First Aid for Spinal Fractures:

- Do not allow the patient to sit up or raise their head.
- For neck fractures or uncertain fracture locations, lay the patient flat on their back on a wooden board.
- For fractures below the head, position the patient face down.
- Transport the patient horizontally using a stretcher, avoiding tilting or jostling.

4. First Aid for Rib Fractures:

Use overlapping adhesive tapes to secure the injured area. Monitor the patient to prevent fainting and promptly transport them to a hospital using a stretcher.

8. First Aid for Chemical Poisoning

1. Inhalation Poisoning:

- Do not attempt rescue without proper protective equipment and familiarity with air respirators and safety ropes to avoid self-poisoning.
- Move the patient to a fresh-air environment.
- If breathing stops or is irregular, administer artificial respiration immediately.
- Call for a physician or transport the patient to a hospital for treatment.
- Keep the patient warm and calm.
- Do not give any alcoholic beverages.

2. Chemical Substances or Foreign Objects in Eyes:

- Open the eyelids and gently rinse with clean water (remove contact lenses first).
- Flush for at least 15 minutes, then transport the patient to a hospital for treatment (do not use boric acid, other chemicals, or ointments).

3. Chemical Burns:

- Rinse the affected area with large amounts of water immediately to minimize damage.
- Remove clothing while continuing to flush the area with water.
- Cover the burn with a clean cloth soaked in saline or water.
- If the burn area is extensive, lay the patient down with their head and chest slightly lower than the rest of the body. If possible, elevate the legs.
- If the patient is conscious and able to swallow, provide plenty of non-alcoholic fluids.
- Seek medical attention for all burns except minor redness of small skin areas.

9. First Aid for Radiation Injuries

1. Radiation Protection:

- Safety depends on time, distance, and shielding. The more material between you and the radiation source, the safer it is. Increasing the distance and ensuring shielding improves safety.

2. Evacuation:

Personnel should quickly move away from or relocate the radiation source.

3. Non-Contamination Assurance:

Personnel or objects not exposed to neutron radiation do not become radioactive. Non-combat radiation exposure does not render people or objects radioactive.

4. Decontamination:

Wash contaminated surfaces with soap (or other detergents) and large amounts of water, similar to removing dirt.

5. Emergency Instructions:

During nuclear warfare, follow the guidance and instructions of civil defense authorities.

6. Symptoms of Radiation Sickness:

Symptoms include nausea, vomiting, and headache. However, these may also result from nervous tension or emotional distress.

7. Avoid Exposure:

- Do not approach unshielded radiation sources.
- Avoid entering areas known or suspected to be contaminated with radiation.

8. Food and Water Safety:

Do not consume food or beverages from areas known or suspected to be contaminated with radioactive substances.

Article 18

In cases of injury caused by specialized work, in addition to seeking medical treatment and reporting the incident to higher authorities, a written report must be submitted to the Safety and Health Committee.

Article 19

In the event of an accident such as a fire, earthquake, or other major disasters, immediately use the internal telephone system to make an emergency broadcast notification and implement necessary rescue measures.

Chapter VIII: Preparation, Maintenance, and Use of Protective Equipment

Article 20

Laboratories must maintain an adequate supply of essential items such as gloves, hand towels, soap, cleaning agents, isolation gowns and caps, masks, footwear, and various protective clothing. Any shortages or damages must be promptly replenished.

Article 21

Operational units for machinery and instruments must ensure the availability and proper condition of safety visors, safety goggles, protective clothing (including those resistant to high/low temperatures and acids/alkalis), gloves, shoes, helmets, earplugs, and masks. Any shortages or unusable items must be immediately replaced.

Article 22

For handling special chemicals and hazardous substances, protective clothing, gloves, masks, goggles (acid- and alkali-resistant), eye wash stations, and emergency showers must be kept in working condition. Any malfunctions or damages must be repaired promptly to ensure usability.

Article 23

Fire safety and evacuation equipment in all facilities must be repaired or replaced promptly if damaged or insufficient.

Article 24

Researchers required to use personal protective equipment (PPE) for their work must use the equipment in accordance with regulations. Regular inspections and maintenance must be performed to maintain the equipment's functionality and ensure operational safety.

Chapter IX: Incident Notification and Reporting**Article 25**

If any personnel sustain serious injuries during work, they must immediately report to the responsible person of the facility. The facility must notify the Safety and Health Committee within six hours. For incidents occurring outside working hours or on holidays, preliminary reports should be made to the on-duty security team, military training officer, and the institute director.

Article 26

In the event of an occupational accident, the responsible person must take necessary emergency and rescue measures immediately. They must also conduct an investigation with employee representatives, analyze the incident, and record the findings.

For any of the following occupational accidents, the Environmental Protection and Safety Health Center must be notified immediately, and a report must be submitted to the labor inspection agency within eight hours. The accident site must not be altered or disturbed without permission from judicial authorities or inspection agencies:

1. Incidents resulting in fatalities.
2. Incidents involving three or more injured persons.
3. Incidents involving one or more injured persons requiring hospitalization.
4. Other incidents specified and announced by the central competent authority.

Article 27

For major incidents as outlined in the previous article, the Safety and Health Committee must report immediately to the Safety and Health Control Center.

Article 28

When an occupational accident occurs in the workplace, the supervisory unit of the facility, in collaboration with members of the Safety and Health Committee, must conduct an investigation, draft preventive measures, submit them to the institute director for approval, and announce their implementation.

Chapter X: Miscellaneous**Article 29**

These guidelines were formulated by the Safety and Health Committee, composed of full-time faculty and student representatives, approved by the Institute Affairs Meeting, and filed with the labor authority for record-keeping. Implementation and revisions follow the same procedure.