








Risk Assessment

Date: 15 Nov. 2019 (Updated 12-09-2022)
 Room: Ø7-610-2 ENS Lab (GI. LEGO)
 Responsible for room: Poramate Manoonpong
 Participants: Poramate Manoonpong; Louise Møller; Susanne Arnsted

What	Risk description/"extent" (see last page)		Management/precautions
Machine Technical appliance Robot	Normal use	Other use: maintenance, cleaning, transport etc. (high risk of wrong use?)	User manual available (legal requirement) Instructions, oral / written Precautions: signage, shield, ventilation, protective gear Green: No risk. Students can use the lab or equipment without any preceding safety instructions. Yellow: Only access after safety instructions. Students may use the lab or equipment without supervisor after thorough safety instructions. Red: Only for use after thorough safety instructions and carefully sticking to the guidelines. Students are not allowed to be alone in the room; there must minimum be one other person present who has also received the safety instructions (it could be a fellow student).
Lithium batteries 	Low Risk	High Risk of explosion and injuries	<ul style="list-style-type: none"> • Please refer to manuals/data sheets and document about battery safety. [Lithium Batteries at TEK.xlsx] • Only charge when there are persons present in the room. • Remember the instructions to use a fire extinguisher. • Isolate the poles before throwing away
Ergonomics – heavy lifts (including lifting a robot) 	Medium Risk of back injuries	High Risk of back injuries	<ul style="list-style-type: none"> • No heavy objects (3+ kg) above shoulder height in the lab. • (Heavy) equipment must be transported on the trolleys. • Please observe the right lifting techniques and weight limits. • When moving robots plan to avoid back injuries. [link]
Robot electric motors 	Low Risk	High Risk of finger injuries	<ul style="list-style-type: none"> • Please refer to manuals/data sheets and document about motor safety. [link] • Do not leave the motor in an active mode unattended. • Do not exceed certain Volts to power the motors (see motor manual). You may get an electric shock. • Beware of overheating and listen for something wrong.
OptiTrack-motion	Low Risk	Low Risk	<ul style="list-style-type: none"> • No risk but please refer to manuals/data sheets and documents when using it [link]

capture system 			
Floor 	Low Risk	Low Risk	<ul style="list-style-type: none"> • Cables must not be on the floor to avoid falling accident, and to make the cleaning easier • Robots/equipment must not be placed on the floor (if no experiment).
Door/window 	Low Risk	Low Risk	<ul style="list-style-type: none"> • Keep them closed for security. • Doors with door closer (dørpumpe) are not allowed to be open with a door stopper – because they are used as fire doors.
Light / electrical devices 	Low Risk	Low Risk	<ul style="list-style-type: none"> • Turn off lights when not in use or leaving the lab. • Switching off or unplugging electrical devices when not in use. • Cable of electrical devices needs to Danish “Jordstik”

Check matrix – risk assessment (probability vs. consequences)

		Sandsynlighed				
Konsekvens		5 Ofte	4 Sandsynlig	3 Sjælden	2 Usandsynlig	1 Meget usandsynlig
5	Katastrofal					
4	Kritisk					
3	Farlig					
2	Noget farlig					
1	Uønsket					

Høj risiko
 Mellem risiko
 Lav risiko

Figur 5 Eksempel på skema (matrix), hvor risiko for et uheldsscenario vurderes på grundlag af sandsynlighed og konsekvens. Bemærk, at denne matrix vægter konsekvens højere end sandsynlighed: Selv om en katastrofal hændelse sker ekstremt sjældent, er risikoen karakteriseret som "mellem" i stedet for "lav".

Source: Risikovurdering, Industriens Branchearbejdsmiljøråd: https://www.bfa-i.dk/media/3070715/risikovurdering_net.pdf

Guidelines / sources of inspiration:

Please note: Remember that there is a separate template for **chemical risk assessments**.

”De vigtigste regler for branchen universiteter og forskning” (Danish Working Environment Authority – in Danish only; including information on chemicals and materials): <https://amid.dk/da/brancher/universiteter-og-forskning/viden-om/de-vigtigste-regler/>

Maskindirektivet: <https://www.retsinformation.dk/Forms/R0710.aspx?id=145800>

- in English you can find most of the rules The Machinery Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0042-20091215>

You can also find a practical guide here: <https://www.tuv-sud-america.com/uploads/images/1531504364411122530285/a-practical-guide-to-machinery-safety.pdf>

- and a check list here: http://www.osha.mddsz.gov.si/resources/files/pdf/E-Fact_20_-_Checklist_for_the_prevention_of_accidents_in_laboratories.pdf

[Arbejdstilsynets vejledning om Maskiner og maskinanlæg](#) (Danish only)

Arbejdstilsynets vejledning om ”[Løft, træk og skub](#)” (Danish only)