INJURY AND ILLNESS PREVENTION PROGRAM

UNIVERSITY OF CALIFORNIA, DAVIS

Mechanical and Aerospace Engineering

UC Davis

Mechanical and Aerospace Engineering

INJURY AND ILLNESS PREVENTION PROGRAM

This Injury and Illness Prevention Program has been prepared by the University of California, Davis,

Department: Mechanical and Aerospace Engineering

This written program is in accordance with UC Davis Policy (Policy and Procedures Manual Section 290-15: Safety Management Program) and California Code of Regulations Title 8, Section 3203 (8CCR§3203: Injury and Illness Prevention Program).

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PREFACE

DEPARTMENT NAME: Mechanical and Aerospace Engineering

DEPARTMENT DIRECTOR: Dr. Benjamin Shaw

DEPARTMENT ADDRESS: 2132 Bainer Hall • One Shields Avenue • Davis, CA 95616-5294

DEPARTMENT TELEPHONE NUMBER: 530-752-0580

BUILDINGS OCCUPIED BY DEPARTMENT

1. Building: Bainer Hall and Wind Tunnel Building
   Unit(s): Administration, Research and Teaching

   Contact: Krasen Kovachev | Felicia Smith | Henry Grace
   Phone: 530-752-8488 | 530-752-0582 | 530-754-1346

2. Building: Academic Surge Building
   Unit(s): Administration, Research and Teaching
   Advanced Highway Maintenance and Construction Technology Research Center (AHMCT)
   Contact: Dave Torick | Krasen Kovachev | Felicia Smith
   Phone: 530-752-5579 | 530-752-8488 | 530-752-0582

3. Building: ATIRC
   Unit(s): Advanced Transportation Infrastructure Research Center (ATIRC)

   Contact: Dave Torick | Krasen Kovachev | Felicia Smith
   Phone: 530-752-5579 | 530-752-8488 | 530-752-0582

4. Building: Spafford
   Unit(s): Center for Spaceflight Research (CSFR)
   Advanced Materials Research Laboratory (AMRL)
   Contact: Krasen Kovachev | Chibuike Agba | Felicia Smith
   Phone: 530-752-8488 | 301-679-8622 | 530-752-0582

I. AUTHORITIES AND RESPONSIBLE PARTIES

The authority and responsibility for the implementation and maintenance of the Injury and Illness Prevention Program (IIPP) is in accordance with University Policy (UCD Policy & Procedure Manual Section 290-15: Safety Management Program) and California Code of Regulations (8CCR, Section 3203) and is held by the following individuals:

1. Responsible Authority

Name: Dr. Benjamin Shaw

Title: Department Chairperson

Authority: Authority and responsibility for **ensuring** implementation of this IIPP

Signature: DocuSigned by: Dr. Benjamin Shaw D73E17C72A7744F... Date: 4/11/2024

2. Department Designated Authority

Name: Krasen Kovachev

Title: Department Safety Coordinator

Authority: Given by Responsible Authority for implementation of this IIPP

Signature: DocuSigned by: krasen kovachev 5FF414812074477... Date: 4/11/2024

All Principal Investigators/supervisors/managers are responsible for the implementation and enforcement of this IIPP in their areas of responsibility in accordance with University Policy (UCD Policy & Procedure Manual Section 290-15: Safety Management Program).

II. SYSTEM OF COMMUNICATION

1. Effective communications with employees have been established using the following methods. Check all boxes that apply, list additional department methods in space provided.

- [x] Standard Operating Procedures Manual
- [x] Safety Data Sheets
- [ ] Monthly departmental operations meetings
- [x] Internal media (department intranet)
- [x] EH&S Safety Nets
- [x] Training videos
- [ ] Safety Newsletter
- [x] Handouts
- [x] Building Evacuation Plan
- [x] E-mail
- [x] Posters and warning labels
- [x] Job Safety Analysis
- [x] Departmental Website
- [x] Other (list): MAE Annual Safety Orientation - offered on a monthly basis, required initially and then annually, as a refresher.
  Safety bulletin board located next to DSC's office, 2101 Bainer Hall
  Safety bulletin board located in Merala room (staff)

2. Employees are encouraged to report any potential health and safety hazard that may exist in the workplace. Hazard Alert/Correction Forms (Appendix A) are available to employees for this purpose. Forms are to be placed in the Safety Coordinator's departmental mail box or emailed to them. Employees have the option to remain anonymous when making a report.

III. SYSTEM FOR ASSURING EMPLOYEE COMPLIANCE WITH SAFE WORK PRACTICES

Employees have been advised of adherence to safe work practices and the proper use of required personal protective equipment (PPE). Conformance will be reinforced by discipline for non-compliance in accordance with University policy (UC Davis Personnel Policies for Staff Members- Section 62, Corrective Action).

The following methods are used to reinforce conformance with this program:

1. Distribution of Policies
2. Training Programs
3. Safety Performance Evaluations

   Performance evaluations at all levels must include an assessment of the individual's commitment to and performance of the accident prevention requirements of his/her position. The following are examples of factors considered when evaluating an employee's safety performance.

   - Adherence to defined safety practices.
   - Use of provided safety equipment.
   - Reporting unsafe acts, conditions, and equipment.
   - Offering suggestions for solutions to safety problems.
   - Planning work to include checking safety of equipment and procedures before starting.
   - Early reporting of illness or injury that may arise as a result of the job.
   - Providing support to safety programs.
4. Statement of non-compliance will be placed in performance evaluations if employee neglects to follow proper safety procedures, and documented records are on file that clearly indicate training was provided for the specific topic, and that the employee understood the training and potential hazards.
5. Corrective action for non-compliance will take place when documentation exists that proper training was provided, the employee understood the training, and the employee knowingly neglected to follow proper safety procedures. Corrective action includes, but is not limited to, the following: letter of warning, suspension, or dismissal.

Does your department use any additional methods for assuring employee compliance with safe work practices?

YES NO X

IV. HAZARD IDENTIFICATION, EVALUATION AND INSPECTION

Job Hazard Analyses and worksite inspections have been established to identify and evaluate occupational safety and health hazards.

1. Job Safety Analysis:

Job Safety Analysis (JSA) identifies and evaluates employee work functions, potential health or injury hazards, and specifies appropriate safe practices, PPE, and tools/equipment. JSA's can be completed for worksites, an individual employee's job description, or a class of employees' job description. Completed JSA's are located in Appendix B.

The following resources are available for assistance in completing JSA's:

- Laboratory personnel, please refer to the Laboratory Hazard Assessment Tool
- Non-Laboratory personnel, please refer to the JSA/PPE Certification Forms
  (Example JSAs are located in Appendix B1 and Appendix B2 of this template)

2. Worksite Inspections

Worksite inspections are conducted to identify and evaluate potential hazards. Types of worksite inspections include both periodic scheduled worksite inspections as well as those required for accident investigations, injury and illness cases, and unusual occurrences. Inspections are conducted at the following worksites:

1) Location: On-Campus Research and Teaching Laboratories
   Frequency: Annual
   Responsible Person: EH&S and Fire Safety, Lab PI or Lab Safety Manager
   Records Location: Electronic and/or Lab Safety Binders

2) Location: Off-Campus Research Laboratories
   Frequency: Annual
   Responsible Person: EH&S Officer, Lab PI or Lab Safety Manager
   Records Location: Electronic and/or Lab Safety Binders

3) Location: On-Campus Administrative Units
   Frequency: Annual
   Responsible Person: EH&S and Fire Safety, Lab PI, or Dept Safety Mngr
   Records Location: Electronic and/or Lab Safety Binders

Worksite Inspections Continued

4) Location: Off-Campus Administrative Units
Frequency: Annual
Responsible Person: EH&S and Fire Safety, Lab PI, or Dept Safety Mngr
Records Location: Electronic and/or Lab Safety Binders

Worksite Inspection Forms

- C1 - General Office (Available in Appendix C)
- C2 – Laboratory

V. ACCIDENT INVESTIGATION

University Policy requires that work-related injuries and illnesses be reported to Workers' Compensation within 24 hours of occurrence and state regulation requires all accidents be investigated.
Employees will immediately notify their supervisor when occupationally-related injuries and illnesses occur, or when employees first become aware of such problems.

1. **Supervisors** will investigate all accidents, injuries, occupational illnesses, and near-miss incidents to identify the causal factors or attendant hazards. Appropriate repairs or procedural changes will be implemented promptly to mitigate the hazards implicated in these events. Injury reporting procedures can be found at the Safety Services Website: Injury Reporting.

2. The **Injury and Illness Investigation Form** (see Appendix D) shall be completed to record pertinent information and a copy retained to serve as documentation. It can be completed by either the supervisor or the Department Safety Coordinator.

3. Departments must notify EH&S immediately if there is any possibility an employee has been seriously injured. Please refer to EH&S SafetyNet 121 for further information.
    - **Immediately:** As soon as practically possible, but no longer than eight hours after the employer knows, or with diligent inquiry, would have known of the death of serious injury or illness
    - **Serious injury or illness:** Any injury or illness occurring in a place of employment, or in connection with employment, which required inpatient hospitalization for other than medical observation or diagnostic testing, or in which an employee suffers and amputation, the loss of an eye, or any serious degree of permanent disfigurement, but does not include any injury, illness, or death caused by an accident on a public street or highway, unless the accident occurred in a construction zone.

VI. HAZARD CORRECTION

Hazards discovered either as a result of a scheduled periodic inspection or during normal operations must be corrected by the supervisor in control of the work area, or by cooperation between the department in control of the work area and the supervisor of the employees working in that area. Supervisors of affected employees are expected to correct unsafe conditions as quickly as possible after discovery of a hazard, based on the severity of the hazard.

Specific procedures that can be used to correct hazards include, but are not limited to, the following:

- Tagging unsafe equipment “Do Not Use Until Repaired,” and providing a list of alternatives for employees to use until the equipment is repaired.
- Stopping unsafe work practices and providing retraining on proper procedures before work resumes.
- Reinforcing and explaining the need for proper PPE and ensuring its availability.
- Barricading areas that have chemical spills or other hazards and reporting the hazardous conditions to appropriate parties.

Supervisors should use the **Hazard Alert/Correction Report (Appendix A)** to document corrective actions, including projected and actual completion dates.

If an imminent hazard exists, work in the area must cease, and the appropriate supervisor must be contacted immediately. If the hazard cannot be immediately corrected without endangering employees or property, all personnel need to leave the area except those qualified and necessary to correct the condition. These qualified individuals will be equipped with necessary safeguards before addressing the situation.

Does your department have any additional Hazard Correction Procedures?

YES NO x

VII. HEALTH AND SAFETY TRAINING

Health and safety training, covering both general work practices and job-specific hazard training is the responsibility of:

Dr. Benjamin Shaw

and immediate Supervisor(s) as applicable to the following criteria:

1. Supervisors are provided with training to become familiar with the safety and health hazards to which employees under their immediate direction and control may be exposed.
2. All new employees receive training prior to engaging in responsibilities that pose potential hazard(s).
3. All employees given new job assignments receive training on the hazards of their new responsibilities prior to actually assuming those responsibilities.
4. Training is provided whenever new substances, processes, procedures or equipment (which represent a new hazard) are introduced to the workplace.
5. Whenever the employer is made aware of a new or previously unrecognized hazard, training is provided.

The **Safety Training Attendance Record** form is located in **Appendix E**.

VIII. RECORDKEEPING AND DOCUMENTATION

Documents related to the IIPP are maintained in/at/on:

MAE Intranet and/or DSC office (2101 Bainer Hall)

The following documents will be maintained within the department's IIPP Binder or accessible online folder for at least the length of time indicated below:

1. Hazard Alert/Correction Forms (Appendix A form). Retain for three years.
2. Employee Job Safety Analysis form (Example JSA's in Appendix B).
3. Worksite Inspection Forms (Appendix C form). Retain for three years.
4. Injury and Illness Investigation Forms (see Appendix D). Retain for three years.
5. Employee Safety Training Attendance Records (Appendix E form). Retain for three years.

IX. RESOURCES

1. UC Office of the President: Management of Health, Safety and the Environment, 10/28/05
2. UC Davis Policy and Procedure Manual, Section 290-15, Safety Management Program
3. California Code of Regulations Title 8, Section 3203, (8CCR §3203), Injury and Illness Prevention Program
4. Personnel Policies for Staff Members, Corrective Action, UC PPSM 62
5. UC Davis Environmental Health & Safety

   Safety Services Website

   EH&S SafetyNets

   Safety Data Sheets

   Campus COVID-19 Prevention Plan
6. Does your department have any additional resources?

   YES x NO

Departmental website, safety section: https://mae.ucdavis.edu/safety
Safety bulletin board located next to the DSC's office, 2101 Bainer Hall

X. COMPLETED TASKS

All tasks are required to be addressed in order to submit this E-IIPP for approval:					
JSA Reviewed:	YES	x	NO		
Annual Worksite Inspection completed:	YES	x	NO		
IIPP Reviewed:	YES	x	NO		
Annual IIPP Training completed:	YES		NO	x	By the end of Apr 2024 for MAE office staff, or as needed

Approve **Well done Krasen!**

HAZARD ALERT / CORRECTION FORM

Alert Identification No. _____

Department: _____

I. Unsafe Condition or Hazard

Name: (optional) _____ Job: _____

Title: (optional) _____

Location of Hazard: _____

Building: _____ Floor: _____ Room: _____

Date and time the condition or hazard was observed:

_____

Description of unsafe condition or hazard: _____

_____

_____

What changes would you recommend to correct the condition or hazard?

_____

_____

Employee Signature: (optional) _____

Date: _____

II. Management/Safety Committee Investigation

Name of person investigating unsafe condition or hazard:

_____

Results of investigation (What was found? Was condition unsafe or a hazard?): (Attach additional sheets if necessary.)

_____

_____

_____

_____

Proposed action to be taken to correct hazard or unsafe condition: (Complete and attach a Hazard Correction Report)

_____

_____

_____

Signature of Investigating Party: _____

Date: _____

IIPP-Appendix A
January 2022

Completed copies of this form should be routed to the appropriate supervisor and department Safety Coordinator, and must be maintained in department files for at least three years.

HAZARD ALERT / CORRECTION REPORT

Alert Identification No. _____

Department: _____

This form should be used in conjunction with the "Hazard Alert Form" as appropriate, to track the correction of identified hazards.

All hazards should be corrected as soon as possible, based on the severity of the hazard. If a serious imminent hazard cannot be immediately corrected, evacuate personnel from the area and restrict access until the hazard can be addressed.

Supervisor/Safety Coordinator Name: _____ Telephone: _____

Supervisor/Safety Coordinator Signature: _____ Date: _____

Description and Location of Unsafe Condition	Date Discovered	Required Action and Responsible Party	Completion Date	
			Projected	Actual

Completed copies of this form should be routed to the department Safety Coordinator and kept in department files for at least three years.

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Job Safety Analysis (Part I)

Instructions:
1. Select assessment category.
2. List tasks/activities: Develop a list of activities, tasks, equipment/tools (group similar tasks/activities).
3. Identify and list potential hazards: for each task, activity or equipment/tools, list and describe the potential hazards.
4. Identify and list controls: for each task, activity, equipment/tools, document controls (i.e. training, equipment, written procedures, PPE…).
5. ***If PPE is required, complete Part II- PPE Hazard Assessment and Certification.***
6. Train affected employees on the final assessment and document the training.

Repeat assessment when new hazards are identified or introduced into the workplace or at least every three (3) years.
Laboratory workers must use the online Laboratory Hazard Assessment Tool (LHAT) for PPE hazard assessment.

I am reviewing (check the appropriate box)	☐ A worksite	Specify location:
	☐ A single employee's job description	Name of employee: Position title:
	☒ A job description for a class of employees	Position titles: Administrative personnel Location: **Business Office**
	Hazard Evaluator	Signature/Date:

TASK/ACTIVITY	POTENTIAL HAZARD	CONTROL	PPE Required? Y/N
General office work	Back strain, eyestrain, repetitive motion injury. Physical injuries due to slips, trips and falls, and falling objects. Electrical hazards. Physical injuries due to fires, earthquakes, bomb threats and workplace violence.	Ensure that workstations are ergonomically correct. Keep floors clear of debris and liquid spills. Keep furniture, boxes, etc. from blocking doorways, halls and walking space. Do not stand on chairs of any kind, use proper foot stools or ladders. Do not store heavy objects overhead. Do not top load filing cabinets, fill bottom to top. Do not open more than one file drawer at a time. Brace tall bookcases and file cabinets to walls. Do not use extension cords in lieu of permanent wiring. Ensure that high wattage appliances do not overload circuits. Use GFCIs in receptacles in potentially wet areas. Replace frayed or damaged electrical cords. Ensure that electrical cords are not damaged by being wedged against furniture or pinched in doors. All personnel to receive annual training to the Emergency Action Plan (EAP) and Injury and Illness Prevention Plan (IIPP).	No
Operation of motor vehicles	Motor vehicle accidents involving personal injury, or property damage.	All drivers of University vehicles must possess a valid California drivers license and receive the Driver Safety Awareness Course offered by Fleet Services during the first 6 months of employment and renewed every three years. Hazardous materials may not be transported in personally owned vehicles.	No

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Job Safety Analysis (Part I)

Training Record

Designated Trainer: (signature is required)

I have read and acknowledge the contents, requirements, and responsibilities outlined in this document:

Name	Signature	Date

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Job Safety Analysis (Part I)

Instructions:
1. Select assessment category.
2. List tasks/activities: Develop a list of activities, tasks, equipment/tools (group similar tasks/activities).
3. Identify and list potential hazards: for each task, activity or equipment/tools, list and describe the potential hazards.
4. Identify and list controls: for each task, activity, equipment/tools, document controls (i.e. training, equipment, written procedures, PPE…).
5. ***If PPE is required, complete Part II- PPE Hazard Assessment and Certification.***
6. Train affected employees on the final assessment and document the training.

Repeat assessment when new hazards are identified or introduced into the workplace or at least every three (3) years.
Laboratory workers must use the online Laboratory Hazard Assessment Tool (LHAT) for PPE hazard assessment.

I am reviewing (check the appropriate box)	☐ A worksite	Specify location:
	☐ A single employee's job description	Name of employee:
		Position title:
	☒ A job description for a class of employees	Position titles: Health and Safety Specialists
		Location: Industrial Safety
	Hazard Evaluator	Signature/Date:

TASK/ACTIVITY	POTENTIAL HAZARD	CONTROL	PPE Required? Y/N
Working in laboratories containing chemicals.	Exposure to chemicals via inhalation, contact, ingestion or injection.	Avoid all unnecessary exposures. Reduce exposures that cannot be avoided by minimizing exposure duration and concentration. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Implementation of proper personal hygiene habits, including washing hands before eating. All personnel to receive on the job and classroom training including UC Lab Safety Fundamentals, Hazardous Waste Management and Minimization and other applicable courses. This will be completed during the first 6 months of employment and renewed every three years.	Lab coat, protective eyewear. Gloves and respiratory protection as needed
Working in laboratories containing radiological materials.	Exposure to radiological agents via inhalation, contact, ingestion or injection.	Avoid all unnecessary exposures. Reduce exposures that cannot be avoided by minimizing exposure duration and concentration. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Implementation of proper personal hygiene habits, including washing hands and face before eating. All personnel to receive on the job and classroom training including UC Lab Safety Fundamentals, Hazardous Waste Management	Lab coat, protective eyewear. Gloves and respiratory protection as needed

		and Minimization, Radiation Safety and other applicable courses. This will be completed during the first 6 months of employment and renewed every three years.	
Working in laboratories containing biological materials.	Exposure to biological agents via inhalation, contact, ingestion or injection.	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Proper adherence to bloodborne pathogen handling protocols. Implementation of proper personal hygiene habits, including washing hands before eating. Voluntary participation in Hepatitis B vaccination program. Proper adherence to biological waste handling procedures. All personnel to receive Bloodborne Pathogen Program training during the first 6 months of employment and renewed annually. Participation in Facilities- specific medical clearances as required.	Lab coat, protective eyewear. Gloves and respiratory protection as needed
Working in laboratories, shops and spaces containing physical hazards.	Injury from physical hazards including high voltage, lasers and ultraviolet light, compressed gases and liquids, cryogenic materials, and specialized equipment as well as falling objects.	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear and specialized equipment. Employees are not to enter restricted areas unless accompanied by a properly trained individual familiar with the hazards of the area. Employees are not to operate specialized equipment without proper training and documentation. Watch for overhead hazards and wear head protection if needed. Personnel auditing or routinely entering areas where lasers are used will receive laser safety training within 6 months of employment and renewed every three years.	Lab coat, protective eyewear. Gloves, respiratory protection, protective headwear, and specialized equipment as needed
Working in laboratories and animal housing facilities containing animals.	Exposure to animals and animal allergies via inhalation and contact.	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Proper adherence to animal care	Lab coat, protective eyewear. Gloves and respiratory protection as needed

		and use protocols. Implementation of proper personal hygiene habits, including washing hands before eating. Participation in the occupational health program for animal workers. All personnel to receive the IACUC Animal Care and Use 101 training during the first 6 months of employment and renewed every three years. Participation in Facilities-specific medical clearances as required.	
Handling and moving heavy items and equipment.	Ergonomic hazards including heavy lifting, repetitive motions, awkward motions, crushing or pinching injuries, etc.	Get help with all loads that cannot be safely lifted by one person. Use mechanical means to lift and move heavy items, push carts and dolly rather than pull, and employ proper lifting techniques at all times. Set up work operations as ergonomically safe as practical. Wear proper hand and foot protection to protect against crushing or pinching injuries. Personnel to receive Back Safety and Injury Prevention training prior to being assigned job task involving handling and moving heavy items/equipment.	Hand and foot protection as needed
Exposure to noise hazards.	Hearing loss due to noise exposure.	Voluntarily participate in the Hearing Conservation Program. Use hearing protection as required. All personnel to receive Hearing Conservation training within 6 months of employment and renewed annually.	Hearing protection (ear plugs and muffs, etc.)
General office work.	Back strain, eyestrain, repetitive motion injury. Physical injuries due to slips, trips and falls, and falling objects. Electrical hazards. Physical injuries due to fires, earthquakes, bomb threats and workplace violence.	Ensure that workstations are ergonomically correct. Keep floors clear of debris and liquid spills. Keep furniture, boxes, etc. from blocking doorways, halls and walking space. Do not stand on chairs of any kind, use proper foot stools or ladders. Do not store heavy objects overhead. Do not top load filing cabinets, fill bottom to top. Do not open more than one file drawer at a time. Brace tall bookcases and file cabinets to walls. Do not use extension cords in lieu of permanent wiring. Ensure that high wattage appliances do not overload circuits. Use GFCIs in receptacles in	No

		potentially wet areas. Replace frayed or damaged electrical cords. Ensure that electrical cords are not damaged by being wedged against furniture or pinched in doors. All personnel to receive annual training to the Emergency Action Plan (EAP) and Injury and Illness Prevention Plan (IIPP).	
Operation of motor vehicles.	Motor vehicle accidents involving personal injury, or property damage.	All drivers of University vehicles must possess a valid California drivers license and receive the Driver Safety Awareness Course offered by Fleet Services during the first 6 months of employment and renewed every three years. Hazardous materials may not be transported in personally owned vehicles.	No

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Job Safety Analysis (Part I)

Training Record

Designated Trainer: (signature is required)

I have read and acknowledge the contents, requirements, and responsibilities outlined in this document:

Name	Signature	Date

WORKSITE INSPECTION FORM

General Office Environment

Location: _____ Date: _____

Inspector: _____ Phone: _____

Department: _____

Administration and Training

Yes ☐ No ☐ NA ☐	1.	Are all safety records maintained in a centralized file for easy access? Are training records current?
Yes ☐ No ☐ NA ☐	2.	Have all employees attended Injury & Illness Prevention Program training? Has the training been documented?
Yes ☐ No ☐ NA ☐	3.	Does the department have a completed Emergency Action Plan? Are employees trained on its contents and training documented?
Yes ☐ No ☐ NA ☐	4.	Are chemical products used in the office being purchased in small quantities? Are Safety Data Sheets available/accessible?
Yes ☐ No ☐ NA ☐	5.	Are mandatory employment notices and posters posted: https://www.hr.ucdavis.edu/supervisors/posters-required-by-law ?
Yes ☐ No ☐ NA ☐	6.	Are annual workplace inspections performed and documented?

General Safety

Yes ☐ No ☐ NA ☐	7.	Are exits, fire alarms, pullboxes clearly marked and unobstructed?
Yes ☐ No ☐ NA ☐	8.	Are aisles and corridors unobstructed to allow unimpeded evacuations?
Yes ☐ No ☐ NA ☐	9.	Is a clearly identified, unobstructed, charged, currently inspected and tagged, wall-mounted fire extinguisher available as required by UC Davis Fire?
Yes ☐ No ☐ NA ☐	10.	Are ergonomic issues being addressed for employees using computers or at risk of repetitive motion injuries?
Yes ☐ No ☐ NA ☐	11.	Is a fully stocked first-aid kit available? Is the location known to all employees in the area?
Yes ☐ No ☐ NA ☐	12.	Are cabinets, shelves, and furniture over five feet tall secured to prevent toppling during earthquakes?
Yes ☐ No ☐ NA ☐	13.	Are books and heavy items and equipment stored on low shelves and secured to prevent them from falling on people during earthquakes?
Yes ☐ No ☐ NA ☐	14.	Is the office kept clean of trash and recyclables promptly removed?

Electrical Safety

Yes ☐ No ☐ NA ☐	15.	Are plugs, cords, electrical panels, and receptacles in good condition? No exposed conductors or broken insulation?
Yes ☐ No ☐ NA ☐	16.	Are circuit breaker panels accessible and labeled?
Yes ☐ No ☐ NA ☐	17.	Are surge protectors being used? If so, they must be equipped with an automatic circuit breaker, have cords no longer than 15 feet in length, and be plugged directly into a wall outlet.
Yes ☐ No ☐ NA ☐	18.	Is lighting adequate throughout the work environment?
Yes ☐ No ☐ NA ☐	19.	Are extension cords being used correctly? They must not run through walls, doors, ceiling, or present a trip hazard.
Yes ☐ No ☐ NA ☐	20.	Are portable electric heaters being used? If so, they must be UL listed, plugged directly into a wall outlet, and located away from combustible materials.

Completed copies of this form should be routed to the department Safety Coordinator and must be maintained in department files for at least three years.

IIPP – Appendix D

Please access the **Injury Reporting Procedure** page on the Safety Services website.

http://safetyservices.ucdavis.edu/article/injury-reporting-procedure

Complete the electronic **Employer's First Report** as soon as practicable.

Completed copies of this form should be routed to the department Safety Coordinator and must be maintained in department files for at least three years.

SAFETY TRAINING ATTENDANCE RECORD

Training Topic: _____ Date: _____
(*attach a copy of the training session curriculum*)

Instructor: _____ Training Aids: _____

Location: _____ Time: _____

Attendees – Please print and sign your name legibly. Use additional sheets if necessary.

No.	Print Name	Signature/Date
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IIPP-Appendix E
January 2022

Completed copies of this form should be routed to the department Safety Coordinator and must be maintained in department files for at least three years.

Appendix B: Job Safety Analysis

Job Function	Potential Health or Injury Hazard	Safe Practice, Apparel, or Equipment
Performing work in laboratories containing chemicals.	Exposure to chemicals via inhalation, contact, ingestion or injection.	Avoid all unnecessary exposures. Reduce exposures that cannot be avoided by minimizing exposure duration and concentration. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Implementation of proper personal hygiene habits, including washing hands and face before eating and smoking. All personnel to receive UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, Hazardous Waste Management and Minimization Training and other applicable courses before beginning work.
Performing work in laboratories containing radiological materials.	Exposure to radiological agents via inhalation, contact, ingestion or injection.	Avoid all unnecessary exposures. Adhere to radiological material handling procedures including limiting exposures through combination of minimizing time, maximizing distances and use of appropriate shielding. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection Implementation of proper personal hygiene habits, including washing hands and face before eating and smoking. Participation in radiological monitoring program including dosimetry. All personnel to receive UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, Radiation Safety training and other applicable courses before beginning to work.
Performing work in laboratories containing biological materials.	Exposure to biological agents via inhalation, contact, ingestion or injection.	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Proper adherence to blood borne pathogen handling protocols. Implementation of proper personal hygiene habits, including washing hands and face before eating and smoking. Voluntary participation in Hepatitis B vaccination program. Proper adherence to biological waste handling procedures. All personnel to attend UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, EH&S Blood borne Pathogen Program training and other applicable courses before beginning to work. Participation in Facilities- specific medical clearances as required.
Performing work in laboratories, shops and spaces containing physical hazards.	Injury from physical hazards including high voltage, lasers and ultraviolet light, compressed gases and liquids, cryogenic materials, and specialized equipment as well as falling objects.	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear and specialized equipment. Employees are not to enter restricted areas unless accompanied by a properly trained individual familiar with the hazards of the area. Employees are not to operate specialized equipment without proper training and documentation. Watch for overhead hazards and wear head protection if needed. All personnel to attend UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, and other applicable courses before beginning to work.
Performing work in laser laboratories.	Potential exposure to specular or diffuse reflections.	Avoid all unnecessary exposures to Class 3b and 4 laser beams. Intrabeam viewing is strictly forbidden at UC Davis. Proper laser safety eyewear is mandatory when the laser is activated unless the beam has been enclosed which effectively changes the class of the laser to a Class 1 (eye safe). When aligning the laser, power down with a visible beam, preferably a Class 3a HeNe. Alignment eyewear is available but once the laser is aligned do not assume that it is eye safe, wear your laser safety eyewear. When choosing proper eye protection one must take into account the power or energy and the wavelength of the laser or laser system. Contact the campus Laser Safety Officer to calculate the Optical Density for your eyewear or check with your Principle Investigator. Employees are not to operate lasers or laser systems without proper training and documentation. Employees or visitors must take the UC Davis Laser Safety Class and be trained on the specific laser they will be using. A Standard Operating Procedure must be in place for each laser or laser system before use. Be aware that there are ancillary hazards associated with the laser and take appropriate precautions. Personnel routinely entering areas where lasers are used will receive UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, Laser Safety training, and other applicable courses before beginning work.

Job Function	Potential Health or Injury Hazard	Safe Practice, Apparel, or Equipment
Performing work in laboratories and animal housing facilities containing animals.	Exposure to animals and animal allergies via inhalation and contact	Avoid unnecessary exposures. Proper selection and use of personal protective equipment including gloves, protective eyewear, lab coats, and in some instances respiratory protection. Proper adherence to animal care and use protocols. Implementation of proper personal hygiene habits, including washing hands and face before eating and smoking. Participation in the occupational health program for animal workers. All personnel to receive UC Laboratory Safety Fundamentals, MAE Safety training, Site-specific training inlcuding Chemical Hygiene Plan or Hazard Communication Program, the IACUC Animal Care and Use 101, and other applicable courses before begining work. Participation in Facilities- specific medical clearances as required.
Handling and moving heavy items and equipment.	Ergonomic hazards including heavy lifting, repetitive motions, awkward motions, crushing or pinching injuries etc.	Get help with all loads that cannot be safely lifted by one person. Use mechanical means to lift and move heavy items, push carts and dolly rather than pull, attend back safety class, employ proper lifting techniques at all times. Set up work operations as ergonomically safe as practical. Wear proper hand and foot protection to protect against crushing or pinching injuries. All personnel to receive MAE Safety training, Site-specific training, and other applicable training before begining to work.
Operation of motor vehicles	Motor vehicle accidents involving personal injury, or property damage	All drivers of University vehicles must attend the Driver Safety Awareness Course offered by Fleet Services and possess a valid California driver license. Hazardous materials may not be transported in personally owned vehicles. All personnel to receive MAE Safety training, Site-specific training, and other applicable training before begining to work.
Exposure to noise hazards	Hearing loss due to noise exposure	Voluntarily participate in the Hearing Conservation Program. Use hearing protection as required. All personnel to receive MAE Safety training, Site-specific training, and other applicable training before begining to work.
General office work	Back strain, eyestrain, repetitive motion injury. Physical injuries due to slips, trips and falls, and falling objects. Electrical hazards. Physical injuries due to fires, earthquakes, bomb threats and workplace violence.	Ensure that workstations are ergonomically correct. Keep floors clear of debris and liquid spills. Keep furniture, boxes, etc. from blocking doorways, halls and walking space. Do not stand on chairs of any kind, use proper foot stools or ladders. Do not store heavy objects overhead. Do not top load filing cabinets, fill bottom to top. Do not open more than one file drawer at a time. Brace tall bookcases and file cabinets to walls. Provide one-inch lip on shelves. Do not use extension cords in lieu of permanent wiring. Ensure that high wattage appliances do not overload circuits. Use GFCIs in receptacles in potentially wet areas. Replace frayed or damaged electrical cords. Ensure that electrical cords are not damaged by being wedged against furniture or pinched in doors. Attend emergency action and fire prevention plan training including emergency escape drills. Plan for methods to seek help in case of a workplace violent situation. All personnel to receive MAE Safety training, Site-specific training, and other applicable courses before beginning to work.

Department Information

Department Name: **Mechanical and Aerospace Engineering**

Department Director: **Dr. Benjamin Shaw**

Address: **2132 Bainer Hall • One Shields Avenue • Davis, CA 95616-5294**

Telephone Number: (**530) 752-0580**

Buildings Occupied by Department (CONTINUED)

5. **Building:** **STEEL**
   Unit(s): **Solar Thermal Energy Enhancement Lab (STEEL)**
   Contact: **Erfan Rasouli | Krasen Kovachev | Felicia Smith**
   Phone: **530-752-9232 | 530-752-8488 | 530-752-0582**

6. **Building:** **Kemper Hall**
   Unit(s): **Research**
   Contact: **Krasen Kovachev | Felicia Smith | Henry Grace**
   Phone: **530-752-8488 | 530-752-0582 | 530-754-1346**

7. **Building:** **TB 207**
   Unit(s): **Research**
   Contact: **Krasen Kovachev | Felicia Smith | Henry Grace**
   Phone: **530-752-8488 | 530-752-0582 | 530-754-1346**

UC DAVIS
UNIVERSITY OF CALIFORNIA

Site-Specific Safety Orientation & Training for New Personnel (HazCom Spaces)

Supervisor or Designated Trainer: Review and select topics below that are applicable to the employee/trainee. Mark programs with an "X" if applicable or "NA" if not applicable. Add additional topics/programs under the "Other" column. Campus-wide applicable topics are identified with an "X". Review identified topics with trainee and provide or schedule training. Training must be completed ***prior*** to trainee engaging in hazardous tasks. Enter initial and date in "Trainer Initial/Date" column upon completion of training. Retain record for at least three years.

Employee/Trainee: Review applicable topics with Supervisor or Designated Trainer. Enter initial and date in "Trainee Initial/Date" column once training is completed. Initial and date only if your questions regarding the material have been completely answered.

Trainee
(Print Name/ Signature/Date) _____ **Department** _____

Supervisor/Trainer
(Print Name/Signature/Date) _____ **Supervisor/Trainer Job Title** _____

Applicable	Trainee Initial	Topic	Action
EMERGENCY PROCEDURES			
X		Emergency Action Plan	Review Emergency Action Plan. Demonstrate both paths to Emergency Assembly Area.
X		Emergency Response Guide	Location(s) of flipchart guide, discuss scenario actions.
X		Fire Alarm Pull Station	Show location(s) and proper activation.
X		Injury Reporting	Review immediate reporting of work-related injuries and illnesses to supervisor. Use *online injury reporting form.*
X		Phone	Location(s), detailed dialing instructions, '911' dialing instructions, bomb threat card.
X		Warn Me	Enroll in UC Davis *Warn Me* emergency alert system, recommend registering cellular phone number. **https://warnme.ucdavis.edu/**
X		Eye Wash/Safety Shower	Show location(s) and proper operation.
X		First Aid Kits	Location(s) and description of contents.
X		Spill Procedures	Show location of spill kit(s), SafetyNets *#13* and *#127* (if applicable), and describe procedures.
PROGRAMS			
X		*Injury and Illness Prevention Program (IIPP)*	Review content and location of IIPP; emphasis on annual review of Job Safety Analysis, injury and hazard reporting and training documentation.
		Confined Space Entry (CSE)	Review *Cal/OSHA requirements*. Show confined space 'permit-required' locations, train on proper completion of the CSE permit and use of equipment and personal protective equipment (PPE).
		Crane operation, hoisting and rigging	Per *Cal/OSHA* only *qualified employees* and trained employees can operate cranes and need training on *Indoor Hoisting and Rigging*. Review *Cal/OSHA operating rules*.
		Electrical Safety	Complete *Electrical Safety* training; requirements for lockout and verification testing of energized equipment; if working "hot", proper use of arc-rated clothing/PPE based on an NFPA 70e arc-flash assessment; and shock hazard analysis insulated tools.
		Ergonomics	Train employee on proper body mechanics

Applicable	Trainee Initial	Topic	Action
		Fall Protection	Review the *Cal/OSHA requirements*. Training on proper inspection, use and wear of harnesses, lanyards for restraint, positioning or arrest. Review identified compliant anchorage locations, areas requiring proper use of beam wraps, and connections to existing SRL's, existing vertical/horizontal lifelines, overhead systems, or cable/rope grabs.
		Forklift and Aerial Lift Operations	Review required use of written pre-use inspection (forklift & aerial lift) and site assessment (aerial lift) forms. Training must include lecture and practical 'hands on' demonstration of skills.
		Hazard Communication Program	*General HazCom Program* location and content description. *Department-Specific HazCom Program Summary* location and content. Demonstrate electronic SDS access and describe repository of hard copies, if applicable. Maintain chemical inventory in *CIS*.
		Hearing Conservation	Employees exposed at or above a time-weighted average of 85 dBA must participate in the Hearing Conservation Program
		Heat Illness	Train employees who work outdoors on *heat illness prevention*
		Lockout/Tagout	For employees 'authorized' to work on energized equipment, show the energy isolation, lockout locations for equipment, review *Cal/OSHA requirements* for lockout, and review of written lockout/tagout procedures.
		Operating Tractor	Review the *operating rules* and for hands on training.
		Shop Safety Program	Review and train on the *Shop Safety Manual*, the site specific *Shop Safety Plan*, and equipment SOPs.
		Welding and Cutting	Review the 72 hour *hot work permit requirements*. Provide *Cal/OSHA compliant ventilation* and respiratory protection as needed.
		Other (describe)	
PERSONAL PROTECTIVE EQUIPMENT			
X		Hazard Assessment	Review completed Job Safety Analysis (JSA) as per IIPP. See *JSA/PPE Certification Forms*.
		PPE Certification	If PPE is identified in JSA, compete and review PPE certification form; provide properly fitted PPE; demonstrate proper selection, use, care and storage.
		Specific PPE	Protection for: ☐Head ☐Eye/Face ☐Body ☐Lungs ☐Upper Extremity ☐Lower Extremity ☐List Specific PPE:_____
OTHER			
		Chemical Fume Hood(s)	Demonstrate proper use, instruction on adjustable controls, flow sensor function, and training requirements.
		Chemical Storage Location(s)	Location(s) and segregation rules, volume limits (>10 gallons requires flammable storage cabinet).
		Compressed Gas Cylinders	Storage locations, regulators, transport, safety considerations.
		Glass & Sharps Waste Containers	Location(s) of accumulation area, demonstrate proper labeling, describe proper storage requirements, and detail pickup/removal procedures.
		Hazardous Waste	Overview of *WASTe* and hazardous waste procedures. Location(s) of accumulation area, demonstrate proper labeling, describe proper storage requirements, and detail pickup/removal procedures.
		Needle sticks	Train on needle and syringe safety (*SafetyNet #62*)
		Specialized Equipment	Review safety procedures for proper operation. *e.g.*, UV light, laser, high voltage equipment, autoclave, cryogen handling. List specialize equipment: _____

University of California, Davis - College of Engineering

INITIAL AND ANNUAL SAFETY TRAINING RECORD

(This is your certificate. Please provide a copy to the PI or lab manager for each lab in which you work.)

Name (print):_____Date:_____

Department: *Mechanical and Aerospace Engineering* PI/Supervisor: _____

Appointment Type (check one): ☐Faculty ☐Post-Doc ☐Visiting Scholar ☐Staff
☐ Grad Student ☐ Undergrad Student ☐ Other _____

I, _____, hereby certify that this employee/student has been trained on the following:
(Krasen Kovachev)

I. ☑ **Injury and Illness Prevention Plans**
- ✓ The general contents of department IIPPs
- ✓ My right to ask any question, or report any safety hazards, either directly or anonymously without any fear of reprisal.
- ✓ The location of departmental safety bulletins and required safety postings.
- ✓ Reporting safety concerns.
- ✓ Accessing the department safety coordinator.
- ✓ Reporting occupational injuries and illnesses.

II. ☑ **Hazard Communication Training**
- ✓ The potential occupational hazards in the work area associated with my job assignment.
- ✓ The location and availability of (Material) Safety Data Sheets (M)SDS.
- ✓ The hazards of any chemicals to which I may be exposed, and my right to the information contained on MSDSs for those chemicals.
- ✓ Identify and evaluate chemical hazards using SDS and chemical labels.

III. ☑ **Emergency Action Plan (EAP)**
- ✓ Emergency escape routes and procedures and Emergency Assembly Area (EAA)
- ✓ How to report a fire and other emergencies.
- ✓ Names or regular job titles of persons to be contacted for further information.

IV. ☑ **Guidelines for Chemical Spill Control and Waste Disposal (Safety Nets 13, 16, 8, 43)**
- ✓ Chemical Hygiene Plans
- ✓ Proper response procedures for chemical spills.
- ✓ Proper approach to chemical waste disposal.

I acknowledge that I received this training and that I am aware that, before working in any laboratory or shop, I must complete all additional training specific to that laboratory or shop as well as the UC Fundamentals of Laboratory Safety course through the online Learning Management System before working unaccompanied in those facilities. (go to https://uc.sumtotal.host)

Employee/Student Signature_____Date_____

University of California, Davis
Department of Mechanical and Aerospace Engineering

ANNUAL AND INITIAL SAFETY TRAINING
GROUP ATTENDANCE RECORD

Instructor:	Location: **ZOOM ID:**	Date:	Time:	Length: **45 mins**

We are legally required to maintain records regarding our safety training activities. Please assist us by providing the information indicated below to document your attendance. Thank you.

Topics Covered in Training:

I. ☑ **Injury and Illness Prevention Plans**

- ✓ The general contents of department IIPPs
- ✓ My right to ask any question, or report any safety hazards, either directly or anonymously without any fear of reprisal.
- ✓ The location of departmental safety bulletins and required safety postings.
- ✓ Reporting safety concerns.
- ✓ Accessing the department safety coordinator.
- ✓ Reporting occupational injuries and illnesses.

II. ☑ **Hazard Communication Training**

- ✓ The potential occupational hazards in the work area associated with my job assignment.
- ✓ The safe work practices and personal protective equipment required for my job title.
- ✓ The location and availability of Material Safety Data Sheets (MSDS).
- ✓ The hazards of any chemicals to which I may be exposed, and my right to the information contained on SDSs for those chemicals.

III. ☑ **Emergency Action Plan (EAP)**

- ✓ Emergency escape routes and procedures and Emergency Assembly Area (EAA)
- ✓ How to report a fire and other emergencies.
- ✓ Names or regular job titles of persons to be contacted for further information.

IV. ☑ **Guidelines for Chemical Spill Control and Waste Disposal (Safety Nets 13, 16, 8, 43)**

- ✓ Chemical Hygiene Plans
- ✓ Proper response procedures for chemical spills.
- ✓ Proper approach to chemical waste disposal.

Name *(Please Print)*	**Email** *(@UCDAVIS.EDU)*	**Signature**	**PI/Supervisor**
1.			
2.			
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6.			

Name *(Please Print)*	**Email** *(@UCDAVIS.EDU)*	**Signature**	**PI/Supervisor**
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Retain training records for at least three years.