Project TWO: Milestone 3 – Cover Page

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| Team Number: | Thurs-25 |

Please list full names and MacID’s of all *present* Team Members

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| --- | --- |
| Full Name: | MacID: |
| Katherine Janavicius | janavick |
| Chunhao Zhang | zhanc181 |
| Kiera Alderson | alderk1 |
| Bernice Lien | lienb |
| Shunyao Jiang | jiangs71 |

Milestone 3 (Stage 1) – Preliminary Solid Model (Modelling Sub-Team)

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| Team Number: | Thurs-25 |

You should have already completed this task individually prior to Design Studio 9.

1. Copy-and-paste each team member’s screenshots of their preliminary solid model on the following pages (1 team member per page)
   * Be sure to clearly indicate who each model belongs to

We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

* Each team member needs to submit their solid model screenshots with the **Milestone Three Individual Worksheets** document so that it can be ***graded***
* Compiling your individual work into this **Milestone Three Team Worksheets** document allows you to readily access your team member’s work
  + This will be especially helpful when completing ***Stage 3*** of the milestone

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| Team Number: | Thurs-25 |

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| Name: Bernice Lien | MacID: lienb |
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| Team Number: | Thurs-25 |

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| Name: Bernice Lien | MacID: lienb |
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| Team Number: | Thurs-25 |

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| Name: Shunyao Jiang | MacID: jiangs71 |
| *Insert screenshot(s) of your model below* | |

\*If you are in a sub-team of 3, please copy and paste the above on a new page

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| Team Number: | Thurs-25 |

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| Name: Shunyao Jiang | MacID: jiangs71 |
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Milestone 3 (stage 2) – Preliminary Program Tasks (Computation Sub-Team)

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| Team Number: | Thurs-25 |

You should have already completed this task individually prior to Design Studio 9.

1. Copy-and-paste each team member’s code screenshots on the following pages (1 team member per page)
   * Be sure to clearly indicate who each code belongs to

We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

* Each team member needs to submit their code screenshots with the **Milestone Three Individual Worksheets** document so that it can be ***graded***
* Compiling your individual work into this **Milestone Three Team Worksheets** document allows you to readily access your team member’s work
  + This will be especially helpful when completing ***Stage 4*** of the milestone

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| Name: Kiera Alderson | MacID: alderk1 |
| *Insert a screenshot of your code below* | |

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| Name: Chunhao Zhang | MacID zhanc181 |
| *Insert a screenshot of your code below* | |

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| Name: Katherine Janavicius | MacID: janavick |
| *Insert a screenshot of your code below* | |

Milestone 3 (Stage 3) – Pugh Matrix

(Modelling Sub-Team)

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1. As a team, evaluate your designs for the sterilization container in the table below
   * List your Criteria in the first column
     + You should include a minimum of 5 criteria
   * Fill out the table below, comparing your designs against the given baseline
     + Replace “Design A” and “Design B” with more descriptive labels (e.g., a distinguishing feature or the name of the student author)
     + Assign the datum as the baseline for comparison
     + Indicate a “+” if a concept is better than the baseline, a “–” if a concept is worse, or a “S” if a concept is the same

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Datum** | **Bernice’s Design** | **Jason’s Design** |
| *Should secure tool* | S | S | S |
| *Easy to pick up* | S | + | S |
| *Easily facilitate sterilization* | S | - | - |
| A side less then 80 mm to ensure good grip | S | S | S |
| Features of container must be greater than 2 mm | S | S | S |
| Easy to place and take out tool | S | + | - |
| Must fit into footprint | S | + | + |
| Total + | 0 | +2 | +1 |
| Total – | 0 | -1 | -2 |
| Total Score | 0 | +1 | -1 |

\*For a team of 3, click the top-right corner of the table to “Add a New Column”

1. Propose one or more suggested design refinements moving forward

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| --- |
| Bernice’s Design   * Make holes throughout the design so it can sterilize the tool better   Jason’s Design   * Make a feature in the design so it can sterilize the tool better (maybe more openings) * Make it easy to place and take out the tool, currently design only allows the tool to be slide in and out, not the most convenient way and the tool can slip out, maybe consider adding a lid or strap of some sort |

Milestone 3 (Stage 4A) – Code Peer-Review

(Computation Sub-Team)

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| --- | --- |
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Document any errors and/or observations for each team member’s preliminary Python program in the space below

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| **Identify Autoclave Bin Location Task** | **Team Member Name**: Kiera Alderson |
| *Enter code errors and/or observations here*   * An error at the second if statement that identifies the green container (most likely do to incorrect coordinate format). Change the multiple if statements within the functions into if, elif, and else. Make container\_red the primary if statement * The multiple functions can be converted to one larger function to avoid complexity * Create if statements within function that identifies the Id number and continue from there | |
| **Move End-Effector Task** | **Team Member Name**: Chunhao Zhang |
| *Enter code errors and/or observations here*   * *Indenting error occurred at the last elif statement* * *Code ran in the module after fixing the indent, but the arm did not turn on meaning there was a code error withing the functions* | |
| **Move End-Effector Task** | **Team Member Name**: Katherine Janavicius |
| *Enter code errors and/or observations here*   * *Change drop of locations to make for simpler coordinates. This will prevent error within the program* * *Arm kept moving up and down when program is run and then eventually stopped* * *No directional movement but only movement in general* | |

Milestone 3 (Stage 4B) – Program Task Pseudocode (Computation Sub-Team)

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As a team, write out the pseudocode for each of the *remaining* tasks in your computer program in the space below.

**Control Gripper**

Initialize program

Identify location of container

Move arm to pick up platform to pick up the container

Open grippers and grab container

Close grippers

Move arm to drop container at appropriate coordinates

**Open Autoclave Bin Drawer**

Initialize program

Move to pick up platform

Identifies colour of a container

If RED Choose the red autoclave bin

Identifies size of a container

If LARGE Open the autoclave

If SMALL Nothing

If GREEN

Choose the green autoclave bin

Identifies size of a container

If LARGE Open the autoclave

If SMALL

Nothing

If BLUE

Choose the blue autoclave bin

Identifies size of a container

If LARGE Open the autoclave

If SMALL Nothing

**Continue or Terminate**

Identify if all containers have been placed in the correct spot

Check if there is any more containers at the pickup location up location

If they have

terminate the program

If there is more containers

continue program

Milestone 3 (Stage 5) – Design pitches

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**Modelling Sub-Team Preliminary Design**

Use the space below to document feedback for your design.

Bernice’s Design

* Handles inside footprint
* Fix the straps – projection (make semi circle)
* To fillet the edge for it to print faster

Jason’s Design

* Make the holes bigger
* The side length has to be 150, not the height

Use the space below to propose further design refinements based on the feedback.

**Computing Sub-Team Preliminary Design**

Use the space below to document feedback for your design.

Kiera:

* Create one simple function that includes if statements for all of the Id numbers instead of three functions
* return the coordinates of the correct autoclave bin
* This will prevent errors from occurring

Katherine:

* Figure out why the Q-arm movement is back and forth and not movement that goes between coordinates

Stan:

* Put print statements within functions to see which part of the code is working in order to fix it
* Create the code in the right way, which can identify the autoclave and control the grippers

Use the space below to propose further design refinements based on the feedback.

- refine code to make sure it runs error free

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