|  | **AHSANULLAH UNIVERSITY** **OF SCIENCE AND TECHNOLOGY** |
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| **Department of Mechanical And Production Engineering** |

**Project Log Book**

**Course Code: ME 3202**

**Course Name: Machine Design Sessions**

**Year: 3rd Year Level 2**

**Project Title: Design a lead screw for a lathe machine**

**Advisor’s Name: Prof. Mazharul Islam**

|  | **Student ID** | **Student Name** | **Email** | **Phone #** |
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**Week # 1**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 2**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 3**

| Date: |  |
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| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 4**

| Date: | **May 30, 2023** |
| --- | --- |
| Start Time: | **11:30 am** |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities | * Conducted literature review |
| --- | --- |
| 2. Next tasks/activities | * Focus on the contents from Shigley’s Textbook (Chapter 8) * Consult Mott’s book on Machine Elements in Mechanical Design * Consult Spotts et. Al book on Design of Machine Elements * Conduct a Preliminary Design |
| 3. Advisor's comments (if any) | Focus on fundamentals related to a Lead Screw |

**Week # 5**

| Date: | **Jun 7, 2023** |
| --- | --- |
| Start Time: | **9:58 am** |
| End Time: | **10:22 am** |

| 1. Discussion and accomplishment of the previous tasks/activities | * Studied Shigley’s Textbook and used Equations 8.1, 8.2 and 8.4 (Chapter 8) * Consulted Spotts et. Al book on Design of Machine Elements and selected ACME Thread * Conduct a Preliminary Design |
| --- | --- |
| 2. Next tasks/activities | * Generate two more alternative designs * Study the fundamentals related to Finite Element Analysis (FEA) as much as possible |
| 3. Advisor's comments (if any) | Good progress has been made - Ma Sha Allah |

**Week # 6**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
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| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 7**

| Date: | **June 22, 2023** |
| --- | --- |
| Start Time: | **11:25 am** |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities | * Generated two more alternative designs * Studied the fundamentals related to Finite Element Analysis (FEA) as much as possible |
| --- | --- |
| 2. Next tasks/activities | * Make a comparative study between the three alternative designs * Select the best one and optimize * Focust on Virtual Product Design   + <https://www.simscale.com/blog/virtual-prototyping-benefit/> * Conduct Mesh Sensitivity Analysis and obtain credible result   + <https://www.youtube.com/watch?v=RwqBe9TSZLY&t=29s>   + <https://www.youtube.com/watch?v=ae4WLrW4_9U> * Focus on Validation and Verification   + <https://www.youtube.com/watch?v=oIhNYqYBIkQ>   + <https://www.youtube.com/watch?v=YJahMjuF1ec> |
| 3. Advisor's comments (if any) | Nazmul Ahsan Nahid is absent |

**Week # 8**

| Date: | **July 12, 2023** |
| --- | --- |
| Start Time: | **10:05 am** |
| End Time: | **10:27** |

| 1. Discussion and accomplishment of the previous tasks/activities | * Conducted a comparative study between the three alternative designs * Selected the best one and optimized * Conducted Mesh Sensitivity Analysis and obtain credible results using Fusion 360 |
| --- | --- |
| 2. Next tasks/activities | * Focus on Virtual Product Design   + <https://www.simscale.com/blog/virtual-prototyping-benefit/> * Focus on Validation and Verification   + <https://www.youtube.com/watch?v=oIhNYqYBIkQ>   + <https://www.youtube.com/watch?v=YJahMjuF1ec> * Prepare the detailed Technical Drawings with dimensions of the Final Optized Design * Prepare technical specifications of the lead screw * Identify the fabrication process |
| 3. Advisor's comments (if any) |  |

**Week # 9**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 10**

| Date: | **July 26, 2023** |
| --- | --- |
| Start Time: | **10:06 am** |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities | * Ayman and Tarek studied Virtual Product Design   + <https://www.simscale.com/blog/virtual-prototyping-benefit/> * Ayman and Tarek studied Validation and Verification   + <https://www.youtube.com/watch?v=oIhNYqYBIkQ>   + <https://www.youtube.com/watch?v=YJahMjuF1ec> * Prepared the detailed Technical Drawings with dimensions of the Final Optized Design * Prepared technical specifications of the lead screw * Identified the fabrication process |
| --- | --- |
| 2. Next tasks/activities | * Focus on reporting based on the Informed Design Process * You can explore the possibility of publishing your work in a journal (e.g. https://ojs.stanford.edu/ojs/index.php/intersect/about/submissions) |
| 3. Advisor's comments (if any) |  |

**Week # 12**

| Date: | **Aug 9, 2023** |
| --- | --- |
| Start Time: | **12:13 pm** |
| End Time: | **12:24 pm** |

| 1. Discussion and accomplishment of the previous tasks/activities | * Focused on reporting based on the Informed Design Process * Prepare the Final Report |
| --- | --- |
| 2. Next tasks/activities | * You can explore the possibility of publishing your work in a journal (e.g. <https://ojs.stanford.edu/ojs/index.php/intersect/about/submissions>) * Please prepare the final report and future presentations based on a scholarly reference (e.g. A Concise Guide by David H. Foster available at <https://books.google.com.bd/books?id=RKY5DwAAQBAJ&printsec=copyright&redir_esc=y#v=onepage&q&f=false>, and "The Mayfield Handbook of Technical & Scientific Writing" available at <https://www.mit.edu/course/21/21.guide/>) |
| 3. Advisor's comments (if any) | Good Progress |

**Week # 12**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 13**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
| --- | --- |
| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

**Week # 14**

| Date: |  |
| --- | --- |
| Start Time: |  |
| End Time: |  |

| 1. Discussion and accomplishment of the previous tasks/activities |  |
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| 2. Next tasks/activities |  |
| 3. Advisor's comments (if any) |  |

Signature of the Advisor:

Signature of the Student(s)

|  | Student ID | Signature |
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