

**Module – Fabrication**

*Open Education Resource*

**Productive Tasks**:

1. Select any one ***job*** for fabrication.

***JOB:*** *It is expected from you to carry out any job involving machining processes like Metal cutting, welding, threading, drilling, filing, grinding ...etc. You can make job such as – Stool, Gates for compound, shed construction, table , cupboards etc.*

1. Draw a sketch indicating it’s scale for a selected job
2. Make an estimate for a selected job
3. Selection of Metal and materials
4. Carry out the actual fabrication process which will involve *(Metal cutting, welding, threading, drilling, filing, grinding etc)*
5. Aesthetics and finishing
6. Costing

***Note : You will need to carry out the actual fabrication processes under the guidance of a senior workshop supervisor or a trained person only.***

**Concept**:

- Students will learn the fabrication processes and they will implement it by completing any one job. (Job can be fabricating – Stool, Gates for compound, shed construction, table , cupboards etc)

- Focus of is to learn from end-To-end . Starting from design, drawing, estimation, material selection, different processes such as welding, drilling, cutting...etc, aesthetics, costing

**Class-Age Group**: 14 & above

**Productive task1: Selecting a Job**

As a first step, find out a fabrication workshop in your village or town.

Following points may help for completing this productive task:

1. Select a job of your interest (Job can be fabricating – Stool, Gates for compound, shed construction, table , cupboards etc ...)
2. The job should be useful for your home/relatives/friends...etc
3. Check if there is any interested buyer for a job you are selecting
4. Choose a workshop which is nearer to your place (Note that you will need to talk to the workshop owner to complete your job under his/experience person)
5. You should get exposure to all the fabrication processes so workshop should have the required tools for cutting, welding, drilling...etc
6. It will be better if you know any one working there

**Productive task 2: Design and Draw a sketch for a selected job**

Design and draw a sketch with proper scale for an identified job

1. Study different designs available in the market.
2. Gather (Visit the actual site-customer place) all the minute specification details from a buyer.
3. Apply your own design ideas
4. Get a design and scale approval from a buyer
5. For assignment purpose you will need to keep a copy of a design with you

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|  |  |
| --- | --- |
| S.No | Power Point Presentations |
| 1 | Design.ppt |
| 2 | Drawing -Area and Volume.ppt |
| 3 | Drawing basics.ppt |

|  |  |
| --- | --- |
| S.No | Document |
| 1 | Engineering Drawing 11.0.doc |

**Productive Task 3: Estimation for a selected job**

Based on the design and the job you will need to prepare a quotation for the selected job and a design

Factors you need to consider

1. List down all the raw material and it’s quantity you will need to complete the selected job
2. Find out the prices for each raw material (check with at least two - three vendors)
3. Find out the time required to complete the selected job and based on that find out the labour cost to complete the
4. Consider all the other costs like electricity, gas, any other cost
5. Find out what is the budget of a buyer. If budget is too low then you will need to modify your design or you may need to bargain with the buyer to increase his budget
6. Prepare a quotation for the job and get an approval from a buyer.
7. For assignment purpose you need to keep copy of the quotation with you

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| --- | --- |
| S.No | Power Point Presentations |
| 1 | Budgeting.pptx |
| 2 | Cash flow.pptx |
| 3 | Costing.ppt |

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| --- | --- |
| S.No | Documents |
| 1 | Quotations.docx |
| 2 | accounts 9.0.doc |

**Productive task 4: Selection of material**

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| In this task you will learn how to select material required to complete your job |
|  |

1. Here you need to balance between your budget and the quality of the material
2. Do not ever compromise on the quality.
3. Bargain with the material supplier
4. For assignment purpose at the end of this task you need to list all the points you have considered for selecting a material

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|  |  |
| --- | --- |
| S.No | Power Point Presentations |
| 1 | Material Selection.ppt |

**Productive task 5: Actual fabrication process**

In this task you will actually fabricate the selected job in fabrication workshop.

***Note : You will need to carry out the actual fabrication processes under the guidance of a senior workshop supervisor or a trained person only.***

1. For assignment purpose collect photographs of the actual job for each stage (cutting welding, drilling ...etc)
2. Refer safety guidelines before actually using any of the fabrication tool. Refer the PPT mentioned in the learning resources for that.

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|  |  |
| --- | --- |
| **S.No** | **Power Point Presentations** |
| 1 | Manufacturing Process-Cutting.pptx |
| 2 | Manufacturing Process-Drilling.pptx |
| 3 | Manufacturing Process -Welding.pptx |
| 4 | welding\_advanced.ppt |
| 5 | Manufacturing Process-Grinding.pptx |
| 6 | safety -Workshop tools.pptx |
| 7 | safety Workshop equipments.pptx |

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| --- | --- |
| **S.No** | **Documents** |
| 1 | manufacturing process 5.0.doc |
| 2 | Manufacturing Processes\_Welding.doc |
| 3 | Safety of workshop tools and equipment .docx |
| 4 | workshop Tools and equipments.docx |

**Video’s for reference: You can view videos for most of the processes by using below links:**

1. <http://www.learningwhiledoing.in/InnerPages/LessonDetails.aspx?LessonId=56&Category=Videos&SubCategory=Technical%20&CategoryId=13&Title=Engineering%20videos>
2. <http://www.learningwhiledoing.in/InnerPages/LessonDetails.aspx?LessonId=47&Category=Manufacturing%20Processes&SubCategory=Welding%20Process&CategoryId=9&Title=To%20understand%20the%20process%20of%20welding>
3. <http://www.learningwhiledoing.in/InnerPages/LessonDetails.aspx?LessonId=18&Category=Manufacturing%20Processes&SubCategory=Grinding%20Process&CategoryId=9&Title=To%20understand%20the%20process%20of%20grinding>

**Productive task 6: Aesthetics and finishing**

By now you will be almost done with the selected job. What remains is the final touch-up and aesthetics.

For assignment purpose take 3 photographs of your job . (Before finishing touch, while the finishing touch-up in progress and once the job is completely ready)

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| S.No | Power Point Presentations |
| 1 | Manufacturing Process-Aesthetics.pptx |
| 2 | Manufacturing Process-Quality.pptx |

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| --- | --- |
| **S.No** | **Documents** |
| 1 | Quality and asthetics 8.0.doc |

**Productive task 7: Costing**

This is the last but very important task you need to complete. You will need to calculate your profit or calculate the actual cost.

Prepare a balance sheet indicating the expenses and the money you have received

Also do not forget to check your estimate Vs actual cost. Many times people do wrong estimates.

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| --- | --- |
| S.No | Power Point Presentations |
| 1 | Profit & loss.pptx |
| 2 | Costing.ppt |