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ADARSH RAI

BUSINESS ANALYSIS REPORT

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SETTING UP A CNC METAL CUTTING MACHINING FACTORY

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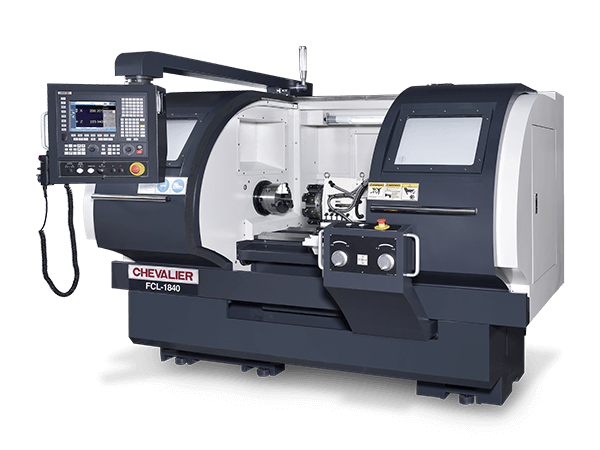
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# SETTING UP A CNC METAL CUTTING MACHINING FACTORY

**PROJECT INTRODUCTION**

What is CNC Machine?

* A CNC machine is a machine that uses computer-controlled tools to shape materials into specific forms. CNC stands for Computer Numerical Control.



How do CNC machines work?

* A CNC machine receives instructions from a computer program.
* The computer program translates digital designs into machining instructions.
* The machine's tools move according to the instructions in the program.

What can CNC machines do?

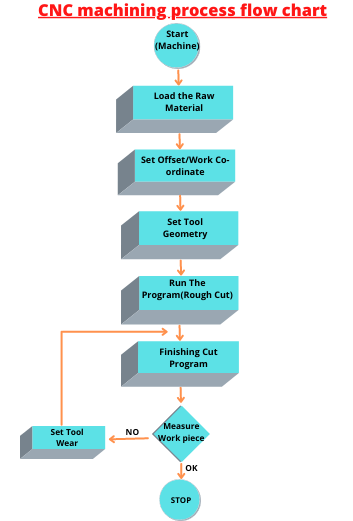
* CNC machines can cut, drill, grind, and shape materials like metal, plastic, wood, ceramic, stone, and composite.
* CNC machines can create 3D prototypes, Molds, cutting dies, printing plates, and precision sights.

Why are CNC machines used?

* CNC machines are used in many industries, including automotive and aerospace, because they can create precise parts.
* CNC machines are faster than manual machines and can minimize material waste.

CNC Machining Processes

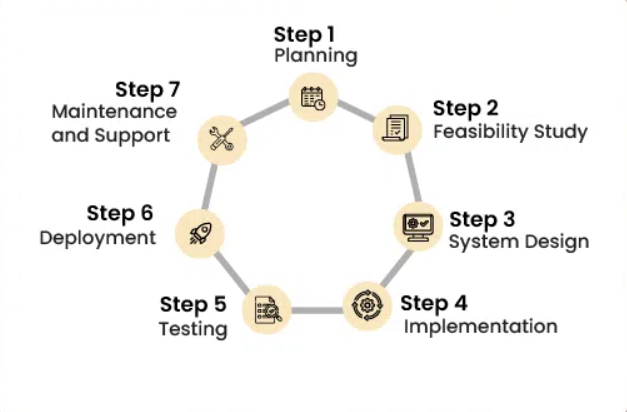
* **Turning**: A cylindrical workpiece is rotated against a stationary cutting tool to create shapes like shafts, utilizing a CNC lathe.
* **Milling**: A rotating cutting tool removes material from the workpiece, allowing for complex 3D shapes and features.
* **Drilling**: A rotating drill bit is used to create holes in the workpiece.
* **Grinding**: An abrasive wheel is used to remove small amounts of material for fine finishing and achieving specific surface textures.



**Business Analyst Role in setting up a factory:**

When setting up a factory, a business analyst would be primarily responsible for gathering and analysing data to identify optimal operational processes, equipment needs, cost structures, and potential risks, ensuring the factory is designed and implemented to meet business goals and maximize efficiency by: identifying requirements, conducting feasibility studies, mapping workflows, analysing cost-benefit scenarios, and coordinating with stakeholders to ensure all aspects of the factory setup align with the overall business strategy; effectively acting as a bridge between technical teams and business leadership throughout the process.

**SDLC Cycle for Setting Up a CNC Metal Cutting Machining Factory:**

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**1. Requirement Analysis OR Planning**

* **Objective**: Understand and document the business needs and goals.
* **Activities**:
  + Conduct stakeholder meetings to gather requirements.
  + Perform market research to identify demand and competition.
  + Define the types of CNC machines, production capacity, and target industries.
  + Estimate budget and perform financial analysis.
  + Ensure compliance with industry standards and regulations.

**2. Feasibility Study/ Analysis**

* **Objective**: Assess the viability of the project.
* **Activities**:
  + Technical feasibility: Evaluate technology and infrastructure needs.
  + Economic feasibility: Cost-benefit analysis.
  + Operational feasibility: Assess operational workflow and resource requirements.
  + Schedule feasibility: Estimate project timeline and milestones.

**3. System Design**

* **Objective**: Plan the layout and design of the factory and its operations.
* **Activities**:
  + Design the factory layout (machine placement, workstations, storage areas).
  + Develop detailed workflow diagrams and process maps.
  + Plan for utilities (electricity, water, ventilation).
  + Select and source CNC metal cutting machines and other equipment.
  + Design the IT infrastructure (network, software for machine control and management).

**4. Implementation**

* **Objective**: Execute the construction and setup of the factory.
* **Activities**:
  + Construct the factory building and infrastructure.
  + Install CNC metal cutting machines and other equipment.
  + Set up IT systems and integrate software.
  + Hire and train staff (machine operators, engineers, maintenance personnel).
  + Develop and implement safety protocols and procedures.

**5. Testing**

* **Objective**: Ensure all systems and processes are working correctly.
* **Activities**:
  + Conduct trial runs of CNC metal cutting machines.
  + Test IT systems and software for functionality.
  + Perform quality assurance checks on sample products.
  + Validate workflow and production efficiency.
  + Address any issues or bottlenecks identified during testing.

**6. Deployment**

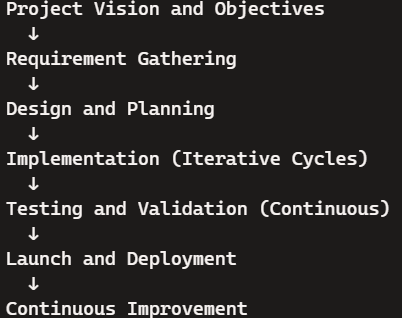
* **Objective**: Officially launch factory operations.
* **Activities**:
  + Begin full-scale production.
  + Monitor production and workflow closely during the initial period.
  + Implement feedback mechanisms for continuous improvement.
  + Ensure compliance with all safety and regulatory requirements.
  + Develop relationships with suppliers and customers.

**7. Maintenance and Support**

* **Objective**: Ensure ongoing smooth operation and improvement.
* **Activities**:
  + Regular maintenance of CNC machines and equipment.
  + Update software and IT systems as needed.
  + Provide ongoing training and support for staff.
  + Conduct periodic audits and performance reviews.
  + Implement continuous improvement practices.

This SDLC cycle provides a structured approach to setting up a CNC metal cutting machining factory, ensuring thorough planning, execution, and ongoing management.

**Agile Process for CNC Metal Cutting Machining Factory Setup**

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**1. Project Vision and Objectives**

* **Objective**: Define the overall vision and objectives of the project.
* **Activities**:
  + Conduct initial meetings with stakeholders to gather insights and goals.
  + Define the project's vision, objectives, and high-level requirements.

**2. Requirement Gathering**

* **Objective**: Collect detailed requirements for the factory setup.
* **Activities**:
  + Conduct workshops and interviews with stakeholders.
  + Document functional and non-functional requirements.
  + Prioritize requirements based on business impact and feasibility.
  + Ensure compliance with industry standards and regulations.

**3.Design and Planning**

* **Objective**: Develop a detailed design and plan for the factory.
* **Activities**:
  + Design the factory layout, including machine placement and workflow.
  + Plan for utilities such as electricity, water, and ventilation.
  + Select and source CNC metal cutting machines and other equipment.
  + Develop a phased implementation plan with clear milestones.

**4. Implementation (Iterative Cycles)**

* **Objective**: Execute the construction and setup of the factory in iterative cycles.
* **Activities**:
  + Break down the project into smaller, manageable iterations.
  + Focus on completing specific deliverables in each iteration (e.g., building construction, machine installation, IT setup).
  + Conduct regular progress reviews and adjust plans as needed.
  + Ensure continuous stakeholder involvement and feedback.

**5. Testing and Validation (Continuous)**

* **Objective**: Ensure all systems and processes are working correctly.
* **Activities**:
  + Perform testing and validation at the end of each iteration.
  + Conduct trial runs of CNC metal cutting machines to verify performance.
  + Test IT systems and software to ensure functionality.
  + Validate workflow and production efficiency.

**6. Launch and Deployment**

* **Objective**: Officially start factory operations in a phased manner.
* **Activities**:
  + Begin full-scale production with a phased approach.
  + Monitor production and workflow closely during the initial phase.
  + Implement feedback mechanisms for continuous improvement.
  + Ensure compliance with all safety and regulatory requirements.

**7. Continuous Improvement**

* **Objective**: Maintain and enhance factory operations over time.
* **Activities**:
  + Perform regular maintenance of CNC machines and equipment.
  + Update software and IT systems as needed.
  + Provide ongoing training and support for staff.
  + Conduct periodic audits and performance reviews.

**Scrum Framework for CNC Metal Cutting Machining Factory Setup**

**Roles**

* **Product Owner**
  + Define and prioritize the product backlog.
  + Gather requirements and create user stories.
  + Communicate with stakeholders and manage their expectations.
  + Ensure that the team delivers value to the business.
* **Scrum Master**
  + Facilitate the Scrum process and ceremonies.
  + Remove impediments and roadblocks.
  + Ensure that the team adheres to Scrum principles.
  + Coach the team in Agile practices.
* **Development Team**
  + Deliver increments of work as per the sprint goals.
  + Collaborate and communicate effectively within the team.
  + Self-organize and manage their work.
  + **Members:**
    - * + Mechanical Engineers
        + Electrical Engineers
        + Software Developers
        + Quality Assurance Specialists
        + Production Managers
        + Maintenance Technicians
        + Market Research Analyst
        + Procurement Specialist
        + Safety Officer
        + Construction manager
        + Lead Technician
        + IT specialist
        + Software Engineer
        + Network Engineer
        + Training Manager

1. **PRODUCT BACKLOG**

**Definition:** The product backlog is a comprehensive list of all the features, enhancements, and bug fixes that need to be developed for the product. It contains everything that could be needed in the product, not just what will be done in the upcoming sprint.

**Scope:** It is maintained for the entire duration of the project and includes items of varying levels of priority and detail.

**Ownership:** The product owner is typically responsible for maintaining the product backlog.

**Structure:** It includes user stories, epics, and tasks with descriptions, priorities, and acceptance criteria.

**Assumptions:**

* + Factory owner has its own land where he wants to set a layout.
  + Budget for whole project = ₹ 4,50,00,000.00
  + Business Analyst has to plan and forecast the whole project under the budget of ₹ 2,25,00,000.00 i.e. half the budget of whole project
* **Condition**- If project goes above the allocated budget to Business Analyst, then he/she has to explain the reason and based on that only investors and stake holders will release the amount.
  + Money from investors and stakeholders will be release in phases for this project.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Epic** | **User Story** | **Description** | **Priority** | **Acceptance Criteria** |
| Project Initiation and Planning | Conduct Stakeholder Meetings | As a project manager, I want to conduct stakeholder meetings to align on project goals. | High | Meeting minutes documented and approved by all stakeholders. |
|  | Define Project Vision and Objectives | As a project team, we need to define the project vision and objectives to guide the project. | High | Documented vision and objectives reviewed and approved. |
|  | Identify Key Requirements | As a business analyst, I need to gather and document requirements from stakeholders. | High | Complete requirements document approved by stakeholders. |
| Market Research and Analysis | Perform Market Research | As a project analyst, I need to perform market research and competitor analysis. | High | Market research report compiled and reviewed by the team. |
| Factory Design and Setup | Design Factory Floor Layout | As an engineer, I need to design the factory floor layout for optimal efficiency. | Medium | Floor layout design reviewed and approved by the team. |
|  | Plan Utilities | As a utility planner, I need to plan the layout for electricity, water, and ventilation. | Medium | Utility layout plans approved by engineers and utility providers. |
|  | Select and Source CNC Machines | As a procurement specialist, I need to select and source CNC machines and equipment. | Medium | List of selected machines and equipment, with supplier contracts. |
|  | Develop Workflow Diagrams | As a production planner, I need to develop workflow diagrams for the production process. | Medium | Workflow diagrams reviewed and approved by the team. |
| Infrastructure and Equipment Setup | Construct Factory Building | As a construction manager, I need to oversee the construction of the factory building. | High | Factory building constructed according to plans, within budget. |
|  | Install Electrical and Plumbing | As a contractor, I need to install electrical and plumbing systems in the factory. | High | Electrical and plumbing systems installed and tested. |
|  | Set Up Ventilation and Climate Control | As an HVAC specialist, I need to set up ventilation and climate control systems. | High | Ventilation systems installed and functioning. |
| CNC Machine Procurement and Integration | Identify and Select CNC Machines | As a procurement manager, I need to identify, select, and procure CNC machines. | Medium | CNC machines delivered to the factory. |
|  | Procure CNC Machines and Other Equipment | As a procurement manager, I need to procure CNC machines and other equipment. | Medium | Procurement orders placed and equipment received. |
|  | Install and Test CNC Machines | As a technician, I need to install and test the CNC machines. | Medium | CNC machines installed, tested, and calibrated. |
| IT Infrastructure and Software Integration | Design IT Network Architecture | As an IT specialist, I need to design the IT network architecture. | Medium | IT network design plan approved. |
|  | Install and Configure Control Software | As a software engineer, I need to install and configure control software for CNC machines. | Medium | Control software installed and configured. |
|  | Implement Production Management Software | As an operations manager, I need to implement production management software. | Medium | Production management software installed and staff trained. |
| Staff Hiring and Training | Hire Skilled Personnel | As an HR manager, I need to hire skilled personnel (operators, engineers, maintenance staff) | High | Staff hired and onboarded. |
|  | Develop and Implement Training Programs | As a training manager, I need to develop and implement training programs. | High | Training programs conducted and staff certified. |
|  | Conduct Safety Training and Certification | As a safety officer, I need to conduct safety training and certification for all staff. | High | All staff certified in safety training. |
| Quality Assurance and Production Launch | Develop Quality Assurance Processes | As a quality assurance manager, I need to develop QA processes and protocols. | Medium | QA processes documented and staff trained. |
|  | Conduct Trial Runs and Performance Testing | As a production manager, I need to conduct trial runs and performance testing. | Medium | Successful trial runs with documented performance data. |
|  | Implement Quality Control Measures | As a QC manager, I need to implement quality control measures for production. | Medium | QC measures implemented and regularly reviewed. |
|  | Begin Phased Production Launch | As an operations manager, I need to begin phased production launch. | High | Phased production launch completed. |
|  | Monitor Initial Production | As a production supervisor, I need to monitor initial production closely and gather feedback. | High | Production data collected and feedback documented. |
|  | Implement Continuous Improvement | As a continuous improvement manager, I need to adjust and refine processes based on feedback. | High | Continuous improvement practices implemented. |

1. **SPRINT BACKLOG**

**Definition:** The sprint backlog is a subset of the product backlog that contains the items selected for development in the current sprint. It focuses on the tasks and activities that the team plans to complete during the sprint.

**Scope:** It is specific to a single sprint and is updated daily during the sprint planning and execution.

**Ownership:** The development team is responsible for maintaining the sprint backlog.

**Structure:** It includes tasks with descriptions, assignees, statuses, priorities, and comments.

-----------------------------------------------------------------------------------------------------------------**Sprint 1 Backlog (Weeks 1-2)**

**Sprint Goal: Project Initiation**

1. **Task:** Conduct Stakeholder Meetings
   * Description: Align on project goals and expectations. Schedule and organize initial meetings, discuss project objectives, and document meeting notes.
   * Assignee: Business Analyst
   * Status: **Completed**
   * Priority: High
   * Comments: Ensure all key stakeholders are involved**.**
2. **Task:** Define Project Vision and Objectives
   * Description: Create project vision and outline objectives. Draft project vision statement, outline specific objectives and deliverables, and review with stakeholders for approval.
   * Assignee: Project Manager
   * Status: **Completed**
   * Priority: High
   * Comments: Align with stakeholders on project goals.
3. **Task**: Identify Key Requirements
   * Description: Gather initial requirements from stakeholders. Collect and document initial requirements.
   * Assignee: Business Analyst
   * Status: **Completed**
   * Priority: High
   * Comments: Ensure all requirements are documented and approved.

**Estimated Number of Professionals Involved:**

* Business Analyst: 1 (Adarsh Rai)
* Stakeholders: 5 (key stakeholders from various departments)
* Project Sponsor: 1

**Budget**: ₹1,20,000 (Salaries for initial project team)

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**Sprint 2 Backlog (Weeks 3-4)**

**Sprint Goal: Requirement Analysis**

1. **Task:** Gather and Document Requirements
   * Description: Conduct detailed requirement analysis. Document and obtain approval from stakeholders.
   * Assignee: Business Analyst
   * Status: **Completed**
   * Priority: High
   * Comments: Ensure thorough analysis and documentation of requirements.
2. **Task:** Perform Market Research and Competitor Analysis
   * Description: Analyze market trends and competitors. Compile and review market research report.
   * Assignee: Business Analyst
   * Status: **Completed**
   * Priority: High
   * Comments: Focus on identifying market trends and competitive landscape**.**

**Estimated Number of Professionals Involved:**

* Business Analyst: 1
* Stakeholders: 3
* Procurement Specialist: 1
* Quality Assurance Manager: 1

**Budget**: ₹1,50,000 (Consultancy fees for market research)

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**Sprint 3 Backlog (Weeks 5-6)**

**Sprint Goal: Factory Design**

1. **Task:** Design Factory Floor Layout
   * Description: Optimize factory floor layout for efficiency. Measure space, create initial layout design, and optimize for efficiency.
   * Assignee: Engineer Team
   * Status: **Completed**
   * Priority: Medium
   * Comments: Ensure layout maximizes operational efficiency.
2. **Task:** Plan Utilities (Electricity, Water, Ventilation)
   * Description: Plan the layout for electricity, water, and ventilation systems. Assess utility requirements, design layouts, and coordinate with providers.
   * Assignee: Engineer Team
   * Status: **Completed**
   * Priority: Medium
   * Comments: Ensure all utility requirements are met and plans are approved.
3. **Task:** Gather Requirements and Document
   * Description: Collaborate with stakeholders and development team to ensure all requirements for the factory design are well captured and documented.
   * Assignee: structural engineer, mechanical engineer, utility provider.
   * Status: completed
   * Priority: Medium
   * Comments: Ensure alignment between stakeholders and the engineering team regarding the design and utility plans.
4. **Task:** Optimize Factory Floor Layout for Efficiency
   * Description: Work with the engineering team to ensure the factory floor layout is optimized for production efficiency.
   * Assignee: Production Manager
   * Status: completed
   * Priority: Medium
   * Comments: Review designs and provide feedback to ensure practicality for production processes.
5. **Task:** Ensure Safety Compliance and Risk Assessment
   * Description: Ensure that all designs and plans comply with relevant safety regulations and standards.
   * Assignee: Safety Officer
   * Status: completed
   * Priority: Medium
   * Comments: Conduct risk assessments and provide safety best practices.

**Estimated Number of Professionals Involved:**

* Business Analyst: 1
* Structural Engineers: 2
* Mechanical Engineers: 2
* Utility Providers: 2 representatives
* Production Manager: 1
* Safety Officer: 1

Budget: ₹2,80,000 (Salaries for engineers and designers)

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**Sprint 4 Backlog (Weeks 7-8)**

**Sprint Goal: Equipment Selection**

1. **Task:** Select and Source CNC Machines and Equipment
   * Description: Identify and order suitable equipment. Research suitable CNC machines, request quotes, and compare options.
   * Assignee: Procurement Team
   * Status: **Completed**
   * Priority: Medium
   * Comments: Ensure selected equipment meets production needs.
2. **Task**: Develop Workflow Diagrams
   * Description: Map out production workflows. Create visual diagrams, review, and refine workflows.
   * Assignee: Production Planner
   * Status: Completed
   * Priority: Medium
   * Comments: Ensure efficient production processes are designed.
3. **Task:** Analyze Business Requirements
   * Description: Collect and analyze business requirements to determine specifications for CNC machines and production workflows. Coordinate with stakeholders to ensure alignment with business goals.
   * Assignee: Business Analyst
   * Status: Completed
   * Priority: High
   * Comments: Vital to ensuring that selected machines and workflows meet business objectives.
4. **Task:** Provide Technical Expertise on CNC Machines
   * Description: Assess technical requirements for CNC machines. Provide recommendations on suitable models and ensure compatibility with existing production processes.
   * Assignee: Mechanical Engineers
   * Status: Completed
   * Priority: High
   * Comments: Crucial for selecting equipment that meets technical and production needs.
5. **Task:** Conduct Quality Assurance Review
   * Description: Conduct Quality Assurance Review
   * Assignee: Quality Assurance Manager
   * Status: Completed
   * Priority: High
   * Comments: Essential for maintaining product quality and meeting industry standards.

**Estimated Number of Professionals Involved:**

* Business Analyst: 1
* Procurement Specialist: 1
* Mechanical Engineers: 2
* Production Engineers: 2
* Quality Assurance Manager: 1

**Budget**: ₹2,40,000

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**Sprint 5 Backlog (Weeks 9-10)**

**Sprint Goal: Infrastructure Setup**

1. **Task:** Construct Factory Building and Infrastructure
   * Description: Oversee construction of factory building and infrastructure. Hire contractors, oversee progress, and ensure compliance with regulations.
   * Assignee: Construction Manager
   * Status: **Completed**
   * Priority: High
   * Comments: Ensure construction is within budget and timeframe.
   * **Materials Used:**
     1. **Concrete:** For the foundation and structural elements.
     2. **Steel:** For the framework and reinforcements.
     3. **Insulation:** To maintain temperature control and energy efficiency.
     4. **Drywall and Plaster:** For interior walls and partitions.
     5. **Electrical Wiring and Fixtures:** For electrical systems.
     6. **Plumbing Pipes and Fixtures:** For water supply and drainage systems.
     7. **Engineers:** 2-3 engineers for overseeing the design, structural integrity, and compliance with safety standards.
     8. **Construction Workers:** 20-25 construction workers for executing the construction tasks, including foundation, framing, insulation, and interior work.
     9. **Electricians:** 3 electricians for installing electrical wiring, fixtures, and ensuring safe and reliable electrical systems.
     10. **Plumbers:** 2 plumbers for installing and maintaining water supply and drainage systems.
     11. **HVAC Technicians:** 2 HVAC technicians for installing and maintaining heating, ventilation, and air conditioning systems.
2. **Task:** Install Electrical and Plumbing Systems
   * Description: Install and test electrical and plumbing systems. Coordinate with electricians and plumbers, install wiring and plumbing, and test systems.
   * Assignee: Contractor Team
   * Status: **Completed**
   * Priority: High
   * Comments: Ensure all systems are installed and tested properly
   * **Construction Material Cost**

The construction cost can vary based on several factors, including the size of the factory, materials used, and location. For a factory setup to house 4 CNC lathe machines, a rough estimate of construction costs would include:

* Concrete (Foundation and Structural Elements): ₹10,00,000
* Steel (Framework and Reinforcements): ₹15,00,000
* Insulation (Temperature Control and Energy Efficiency): ₹5,00,000
* Drywall and Plaster (Interior Walls and Partitions): ₹4,00,000
* Electrical Wiring and Fixtures: ₹6,00,000
* Plumbing Pipes and Fixtures: ₹4,00,000
* HVAC Systems: ₹6,00,000

**Estimated Number of Professionals Involved:**

* Construction Manager: 1
* Engineers: 2 (including Structural and Mechanical Engineers)
* Contractors: 2 (General Contractors)
* Construction Workers: 20
* Electricians: 3
* Plumbers: 2
* HVAC Technicians: 2
* Quality Assurance Manager: 1
* Safety Officer: 1
* Business Analyst: 1

**Budget:** Construction Material cost (50,00,000) + Salaries of Estimated number of professionals involved (7,00,000) = 57,00,000

**Sprint 6 Backlog (Weeks 11-12)**

**Sprint Goal: CNC Machine Procurement**

1. **Task: Identify and Select Suitable CNC Lathes**

**Description:** Evaluate and select CNC lathes to meet production needs. Conduct market research, evaluate quotes, compare options, and ensure supplier contracts are signed.

**Assignee:** Procurement Manager

**Status: Completed**

**Priority:** Medium

**Comments:**

Ensure machines meet production needs and are within the budget of **₹70 lakhs**.

**Number of Machines:**

Based on the budget, it is possible to purchase approximately 4 high-quality CNC lathes, depending on the specific models and features selected.

1. **Task**: **Procure CNC Machines and Other Equipment**
   * **Description**: Place orders and arrange delivery. Place orders, arrange transportation, and ensure safe delivery and handling.
   * **Assignee**: Procurement Manager
   * **Status**: **Completed**
   * **Priority**: Medium
   * **Comments**: Ensure timely procurement and delivery of equipment.
2. **Task:** Install and Test CNC Machines
   * **Description**: Install and calibrate CNC machines. Position machines, connect to power and control systems, and perform initial testing and calibration.
   * **Assignee**: Technician Team
   * **Status**: **Completed**
   * **Priority**: Medium
   * **Comments**: Ensure machines are installed and calibrated correctly.

**Estimated Number of Professionals Involved:**

* Electricians-3
* HVAC Technicians-2
* Safety Officer-1
* Construction Manager-1
* Quality Assurance Manager-1
* Structural Engineers-1
* Procurement Manager-1
* Technician-2
* Business Analyst-1
* Mechanical Engineers-1
* Production Engineers-2
* Quality Assurance Manager-1

**Budget**: Machine procurement cost (70,00,000) + Salaries of Estimated number of Professionals involved (6,00,000) = 76,00,000

---------------------------------------------------------------------------------------------------------------------------**Sprint 7 Backlog (Weeks 13-14)**

**Sprint Goal: IT Infrastructure and Software Integration**

1. **Task:** Design IT Network Architecture
   * **Description**: Plan and design IT network setup. Assess IT requirements, create network design plan, and procure necessary hardware.
   * **Assignee**: IT Specialist
   * **Status**: **Completed**
   * **Priority**: Medium
   * **Comments**: Ensure network design supports factory operations.
2. **Task: Install and Configure Control Software for CNC Machines**
   * **Description**: Set up control software for CNC machines. Select control software, install on machines, and configure settings.
   * **Assignee**: Software Engineer
   * **Status**: **Completed**
   * **Priority**: Medium
   * **Comments**: Ensure control software is installed and configured properly.
3. **Task: Implement Production Management Software**
   * **Description**: Train staff on production management software. Choose suitable software, integrate with existing systems, and train staff.
   * **Assignee**: Operations Manager
   * **Status**: **Completed**
   * **Priority**: Medium
   * **Comments**: Ensure staff is trained on production management software.

**Estimated Number of Professionals Involved:**

* IT Specialist: 1
* Software Engineer: 1
* Operations Manager:1
* Network Engineer: 1
* System Administrator:1
* Training Specialist :1
* Quality Assurance (QA) Manager:1
* Business Analyst: 1   
  **Budget**: ₹7,00,000 (IT hardware, IT Professionals Salary and software costs)

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**Sprint 8 Backlog (Weeks 15-16)**

**Sprint Goal: Staff Training and Production Launch**

1. **Task:** Hire Skilled Personnel (Operators, Engineers, Maintenance Staff)
   * **Description: Recruit and onboard skilled personnel. Create job descriptions, post job openings, conduct interviews, and select candidates.**
   * **Assignee: HR Manager**
   * **Status: Completed**
   * **Priority: High**
   * **Comments: Ensure all key roles are filled with qualified personnel.**
2. **Task:** Develop and Implement Training Programs
   * **Description: Conduct training sessions for staff. Develop training materials, schedule training sessions, and conduct hands-on training.**
   * **Assignee: Training Manager**
   * **Status: Completed**
   * **Priority: High**
   * **Comments: Ensure staff is well-prepared for their roles.**
3. **Task:** Conduct Safety Training and Certification
   * **Description: Ensure all staff are safety certified. Develop safety training curriculum, arrange certification exams, and ensure all staff are certified.**
   * **Assignee: Safety Officer**
   * **Status: Completed**
   * **Priority: High**
   * **Comments: Ensure all staff are trained and certified in safety protocols.**
4. **Task:** Develop Quality Assurance Processes and Protocols
   * **Description: Set up quality assurance processes and protocols. Define quality standards, create QA procedures, and train staff.**
   * **Assignee: QA Manager**
   * **Status: Completed**
   * **Priority: Medium**
   * **Comments: Ensure quality assurance processes are in place.**
5. **Task:** Conduct Trial Runs and Performance Testing of CNC Machines
   * **Description: Perform trial runs and performance testing of CNC machines. Schedule trial runs, monitor machine performance, and record results.**
   * **Assignee: Production Manager**
   * **Status: Completed**
   * **Priority: Medium**
   * **Comments: Ensure machines meet performance specifications.**
6. **Task: Oversee Quality Control During Production**
   * **Description: Monitor the quality of products during production. Conduct inspections, record data, and ensure products meet quality standards.**
   * **Assignee:** **Quality Control Manager**
   * **Status: Completed**
   * **Priority: Medium**
   * **Comments: Ensure consistent product quality during production.**
7. **Task: Operate CNC Machines**
   * **Description:** **Operate CNC machines, perform necessary tasks, and ensure machines function properly during production.**
   * **Assignee: Operators**
   * **Status: Completed**
   * **Priority: High**
   * **Comments:** **Ensure mechanical components are functioning properly during production.**

**Estimated Number of Professionals Involved**

* HR Manager: 1
* Training Manager: **1**
* Safety Officer: **1**
* Quality Assurance Manager: **1**
* Production Manager: **1**
* Quality Control Manager: **1**
* Operators: **4**
* Mechanical Engineer:1

**Budget:** ₹3,00,000 (salaries of estimated number of professionals and initial production costs)

**Total Estimated Cost Breakdown**

|  |  |
| --- | --- |
| **Parameters** | **Cost** |
| Salaries for project Initiation | ₹1,00,833.34 |
| Salaries for Market Research and Requirement Analysis | ₹1,46,665.34 |
| Salaries for Engineers & Designers | ₹2,79,166.04 |
| Utility planning | ₹2,12,500.04 |
| Procurement of CNC machine | ₹70,00,000.00 |
| Construction Material Cost | ₹50,00,000.00 |
| Salaries of Estimated number of professionals involved in infrastructure setup | ₹5,79,166.74 |
| Salaries for professionals involved in CNC Machine Procurement | ₹75,37,500.10 |
| IT hardware and software | ₹6,51,956.36 |
| Staff Training and Trial Run cost | ₹2,97,375.06 |
| Miscellaneous | ₹1,50,000.00 |
| **TOTAL** | **₹2,19,55,163.02** |

**Financial Summary**

|  |  |
| --- | --- |
| Budget Allocated | **₹2,25,00,000.00** |
| Total Estimated Cost | **₹2,19,55,163.02** |
| Remaining Amount | **₹ 5,44,836.98** |

**Conclusion**

The project is well within the allocated budget, with a remaining amount of ₹7,37,500. Each sprint is designed to ensure efficient and effective completion of tasks, with clear roles and responsibilities assigned to professionals. The collaborative approach and adherence to standards will help achieve the project goals, resulting in the successful setup and launch of the CNC machine factory.