

## Collaborative Engineering

### Project Management



- ◆ Project Management
- ◆ Process Groups
- ◆ Work Breakdown Structure
- ◆ Gantt Charts

OrthoCAD Lab, I.I.T. Bombay

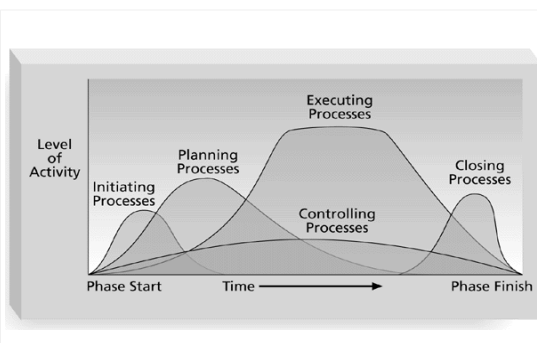
## Project Management

### Project Management generally includes:

- Initiation Processes
- Planning Processes
- Executing Processes
- Controlling Processes
- Closing Processes



## Overlap of Process Groups



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## Initiating Processes

### In the initiating stage:

- Form Team
- Determine nature & scope of project
- Analyze business needs
- Set measurable goals
- Review current products
- Set a budget
- Determine the stakeholders
- Select Team leader

### Most critical step of the project

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## Planning Processes

- **Project Scope** is defined
- **Appropriate methods** for the project are determined
- **Schedules** are finalized
- **Work breakdown structure (WBS)** is created with durations for various tasks
  - **WBS** is deliverable oriented decomposition of a project into smaller components
  - Helps in organizing and defining the total work scope of the project.

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## Planning Processes

### Work Breakdown Structure

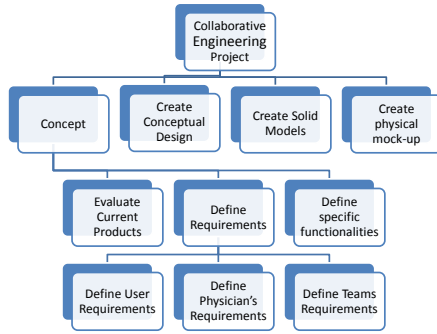
#### Design principles for WBS

- 100% rule
  - 100% of the work defined by the project scope
  - All deliverables are captured – internal, external, interim
- Mutually exclusive elements
  - States that there should be no overlap in scope definition between two elements of WBS
- Plan outcomes, not actions
  - Should include the 'WHAT'S'; not the 'HOWS'
  - Allows for greater ingenuity and creative thinking

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## Planning Processes

### Work Breakdown Structure



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## Planning Processes

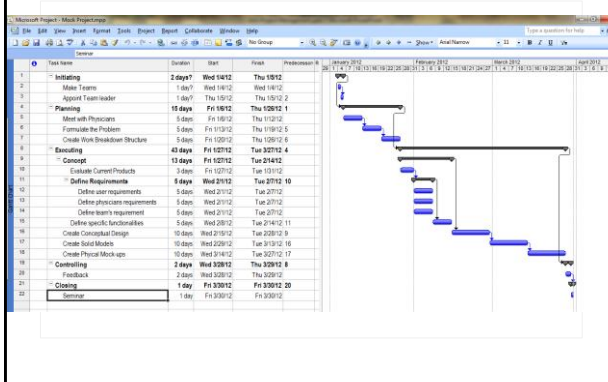
### Gantt Charts

- Bar chart that illustrates a project schedule
- Illustrates the **start and finish dates** of elements and summary of project
- Shows the **dependency** (i.e., precedence network) relationships between activities
- Shows current schedule status using percent-complete shadings



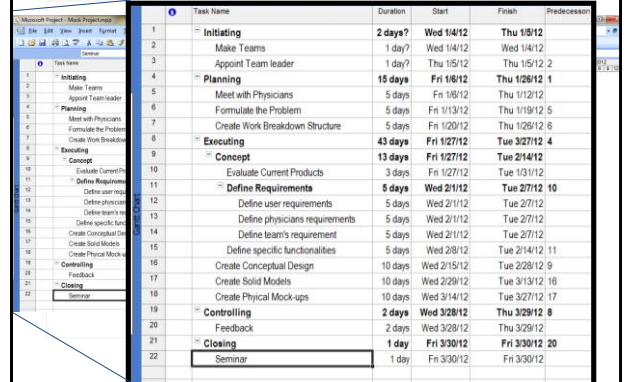
## Planning Processes

### Gantt charts using Microsoft Project®



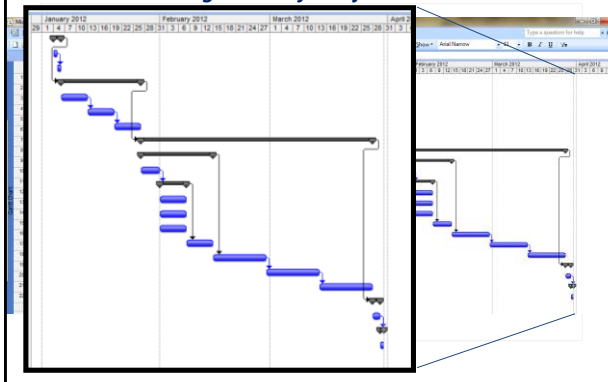
## Planning Processes

### Gantt charts using Microsoft Project®



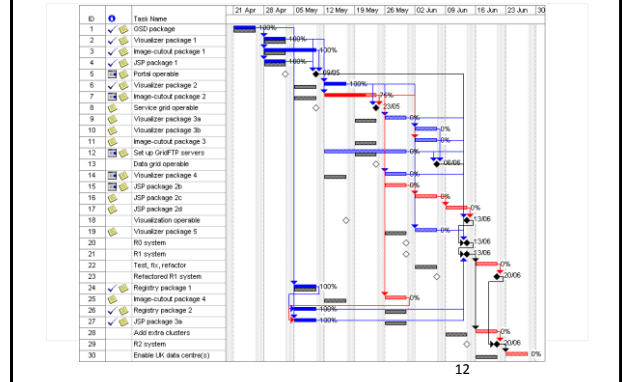
## Planning Processes

### Gantt charts using Microsoft Project®



## Planning Processes

### Gantt charts used in Industries



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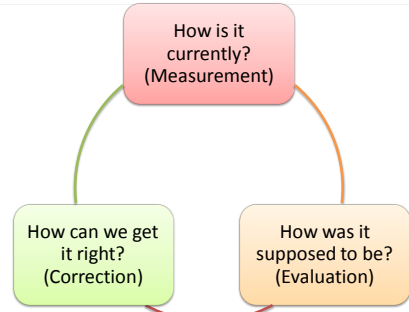
### Executing Processes

- Consists of the processes used to complete the work defined in the project plan
- Involves **coordinating** with your team and **managing your time**
- The deliverables are produced as **outputs**



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### Controlling Processes



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### Closing Processes

- **Includes:**
  - Finalize all activities across all of the process groups to formally **close** the project
  - Formally **present** the results of the project
  - **Archive** of the files and **document** lessons learned



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