GEPM-375

Project Planning and Construction Management

What we learned (important) in the last class?

- What is a Project ?
- Characteristics of a Project.
- Project in organizations.
- All FOUR forms the Work Breakdown Structure (WBS)

What we will try to discuss today:

- **Work Breakdown Structure (WBS)**
- Product Breakdown Structure (PBS)

Work Breakdown Structure (WBS)

Project Management

- Application of **knowledge, skills, tools, and techniques** to project **activities** to meet project **requirements**.
- Practice of **planning, organizing, and executing** the tasks needed **to turn a brilliant idea** into a **product, service, or result.**

Key aspects of project management include:

- Defining project **scope**
- Identifying **deliverables**
- Managing **risks**
- Effective **communication** across teams

Project Scope

- A **detailed outline** of all the **activities, resources,** and **deliverables** required to **complete a project**.

- Also includes the project's **boundaries**, **timelines**, and **stakeholders**.

What is Work-breakdown Structure (WBS)?

- A **key project deliverable** that **organizes the team's work** into **manageable sections.**

- A **hierarchical** (arranged in order of rank) **decomposition** of the **total scope of work** to be carried out by the **project team** to accomplish the **project objectives**.

- **Project scope** is the total amount of work that needs to be done to complete a **project/achieve project objective(s)**.

Project objective (s):

Project objectives are what you **plan to achieve** by the end of your project

Elements of WBS

- WBS is often used to **determine an Task/activity, based on the hierarchy of projects,** with **reference to desirables and objectives**.

Program- break down of series of projects.
Project

Task- an identifiable and measurable **activity** that create a small unit of work for a related project.

Work package - divisions of project tasks

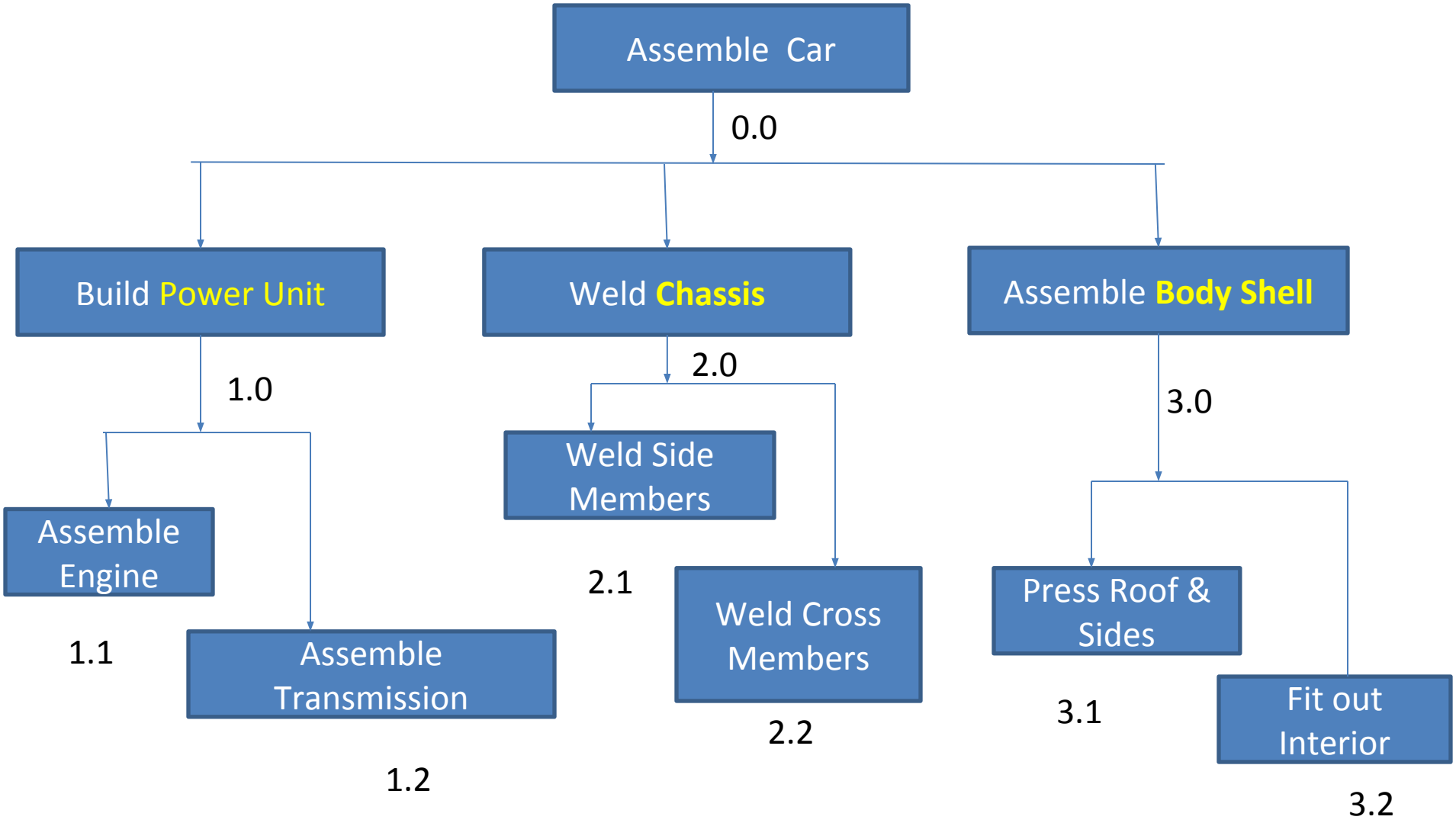
Work unit - divisions of work package

All FOUR are the elements of Work Breakdown Structure (WBS)

Task: Easily identifiable and measurable work performed by by a small unit.

Activity is defined as the **amount of works performed** that convert inputs into appropriate outputs.

Project – **Assemble of Car: WBS**



Assemble Car





Weld Chassis



Assemble Engine

Assemble Body Shell



Work Breakdown Structure-WBS

- WBS is **not a program** although it looks like.

- **Interrelationship shown by link** do not necessarily imply a time dependence or indeed a sequential operation

A Project-Assemble of Car

Car Assembly-Three Units:

a. Build Power Unit (1)
b. Weld Chassis Unit (2)
c. Assemble Body Shell Unit (3)

Build Power unit(1)- Assemble Engine (1.1) and Assemble Transmission(1.2)

Weld Chassis Unit (2)-Weld Side Members(2.1) and Weld Cross Members(2.2)

Assembls Body Shell Unit (3)-Press Roof and Sides (3.1) and Fit out Interior.

Requirements of WBS (M IGSTI)

- **Main task** decided upon.
- Main tasks **broken into subtasks** to be coded with the project cost.
- Assist in **identifying the whole strings of relationship** down to individual tasks.
- **Logical starting point** for subsequent planning network.
- A **graphical representations** of **task relationship** can be created.
- Very **useful tools** for disseminating information as well as a reporting medium to all stakeholders.
- **Ideal instrument** for reporting progress upward to senior management and thus status of each task is regularly updated.

Advantages

- **Cost allocation** can be given to each task in the WBS.
- **A risk factor** can also be added to each task.
  - Assist in **building up** the **total project cost**.
  - Able to **create a risk register** for subsequent and more rigorous risk assessment.

Objective of WBS:

To be **able to control the project** by allocating resources (human, material and financial) and giving time constraints to each task.

Explanation

- It is always **easier to control a series small entities** which make up a whole, the trying to control the whole enterprises as one operation.

- History has proven to be successful for **Armies.**

- Army-divisions-brigades-regiments-companys-platoons-sections-individuals.

True to a Project, small or big, sophisticated or straightforward

Product Breakdown Structure-PBS

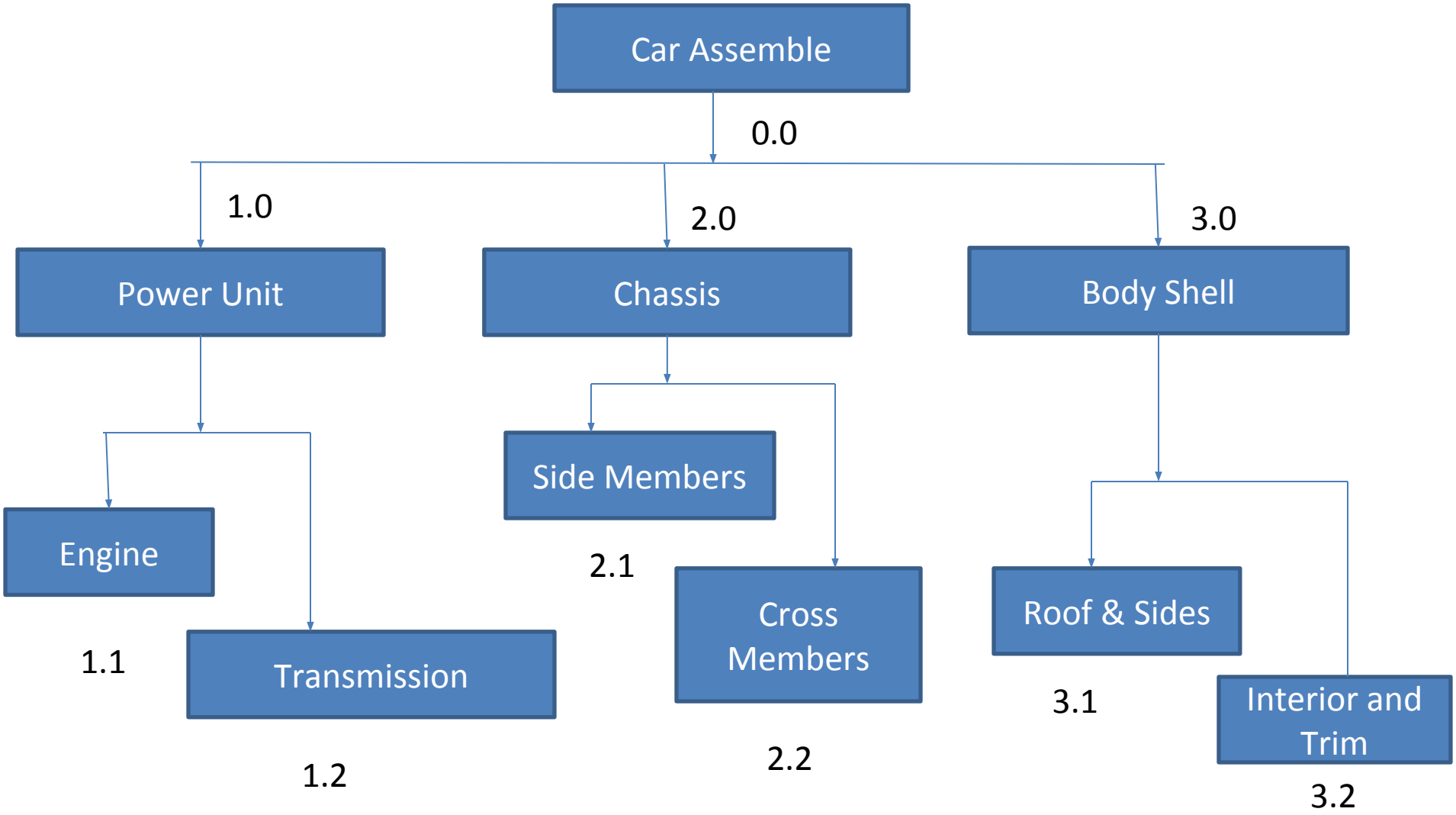
What is Product Breakdown Structure?

- A **Product Breakdown Structure** (PBS) is a **hierarchical structure of Product** that the **project will make** or **outcomes that it will deliver**.

- It can be thought of as the project **"shopping list."**

- It **decomposes** a "Main Project **Product**" into **its constituent parts** in the form of a hierarchical **structure**.

Project – Assemble of Car (Product Breakdown Structure)



Comparison between PBS and WBS:

- Both term are **used for hierarchy of stages** of a project.
- PBS is **hierarchical diagram of product** and WBS is for **hierarchical diagram for work.**
- Both are based on the principles of **sub dividing the project into manageable components.**
- Though they look a like, **they are not programs**, and interrelationships shown by link lines do not necessary imply a time dependent or **indeed a sequential operation.**
- **Degree to which they need to be broken**, will have to be decided upon by the Project Manager.

What we have discussed today:

- **Work Breakdown Structure (WBS)**
- Product Breakdown Structure (PBS)

Thank You