Chapter 3: An overview of project planning

Part 2

NET481: Project Management

Topics to be covered

⬧ Project Planning in an organized step by step manner

⬧ Different techniques and how they are fit into an overall planning approach

⬧ The need to repeat the planning process in more details for some activities within a project before execution

Planning Activities Steps

- Step 0: Select project

- Step 1: Identify project scope and objectives

- Step 2: Identify project infrastructure

- Step 3: Analyze project characteristics

- Step 4: Identify project products and activities

- Step 5: Estimate effort for each activity

Planning Activities Steps (cont.)

- Step 6: Identify activity risks

- Step 7: Allocate resources

- Step 8: Review/publicize plan

- Step 9: Execute plan

- Step 10: Execute lower levels of planning

An overview of step wise

0. Select project
1. Identify project scope and objectives
2. Identify project infrastructure
3. Analyse project characteristics
4. Identify the products and activities
Review
Lower-level detail
5. Estimate effort for each activity
6. Identify activity risks
For each activity
10. Lower-level planning
7. Allocate resources
9. Execute plan
8. Review/ publicize plan
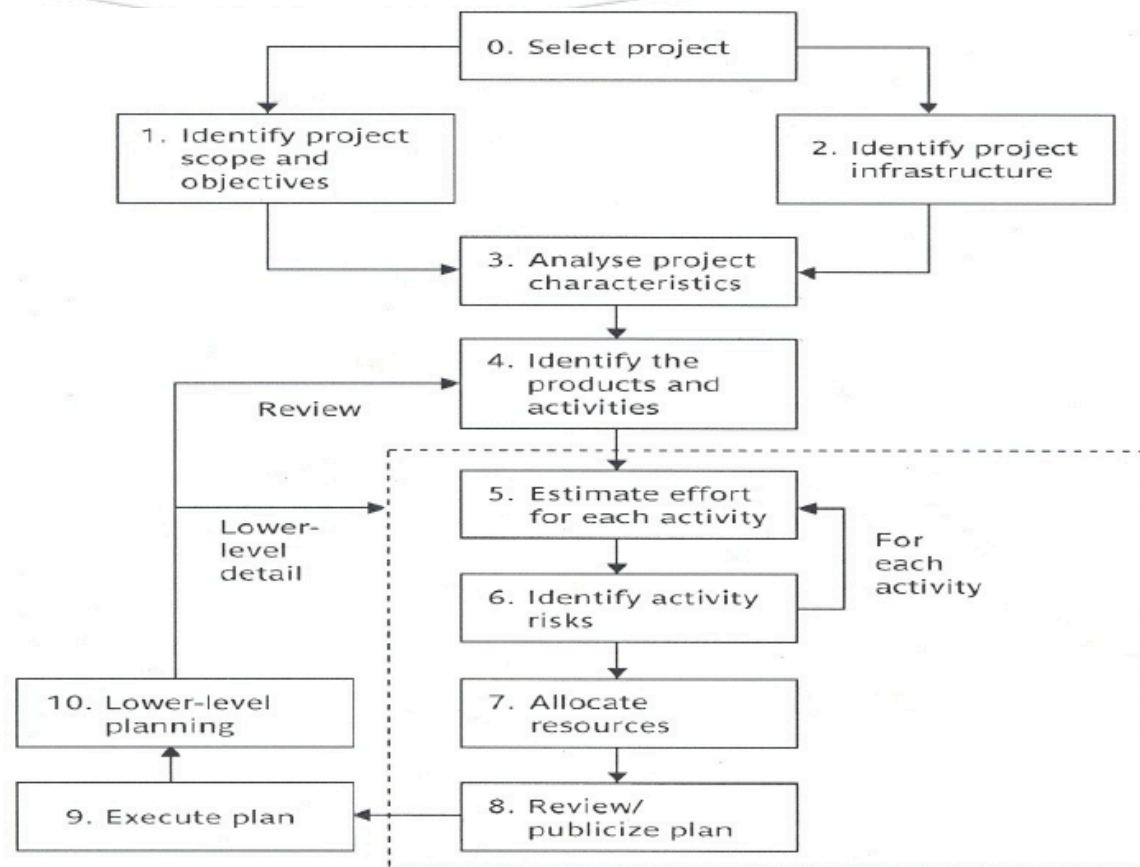
Step 4: Identify Project Products and Activities

♦ **4.1 Identify and describe project products**

  ♦ Identify all the products related to the project

  ♦ Account for the required activities.

Products can be:

- Deliverables.

- Intermediate products.

- Technical products (e.g. training material, operating instructions).

- Products for management and quality (e.g. planning documents).

Step 4: (cont.)

- **Products can be:**
  - Created from scratch.
  - Modified version of something.
  - Document.
  - Person.
  - Not an activity.

- **Activity**
  - training
  - Testing
 - Designing
  - Documenting.

Step 4: (cont.)

- **Products will perform a hierarchy:**
  - Main products will have a set of components which in turn will have sub-components and so on.

  - These relationships can be documented in a PBS product breakdown structure.

Product Breakdown Structure

- The tangible products are those at the bottom of the PBS that are not further subdivided.
- The boxes that are higher up are names of group of items.
- The products at the bottom of the PBS should be documented by Product Descriptions.
    - The name, the purpose, the derivation of the product.
    - The composition, the form the standards and quality criteria of the product.

Product Breakdown Structure
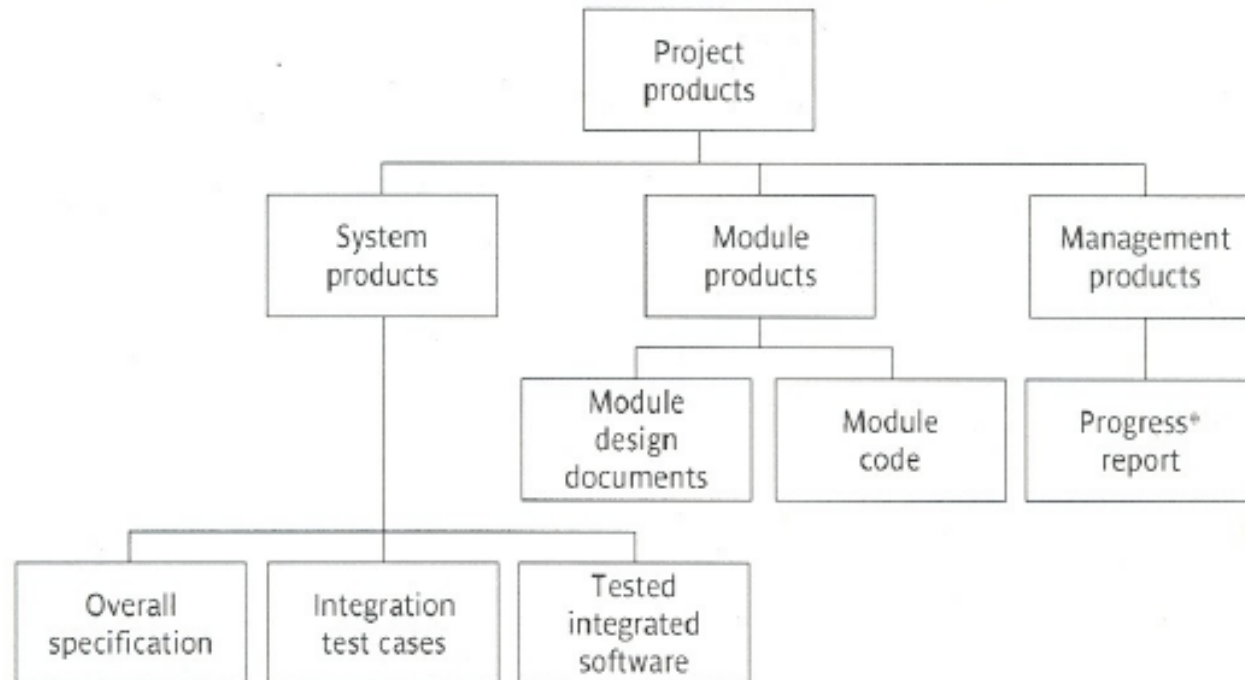
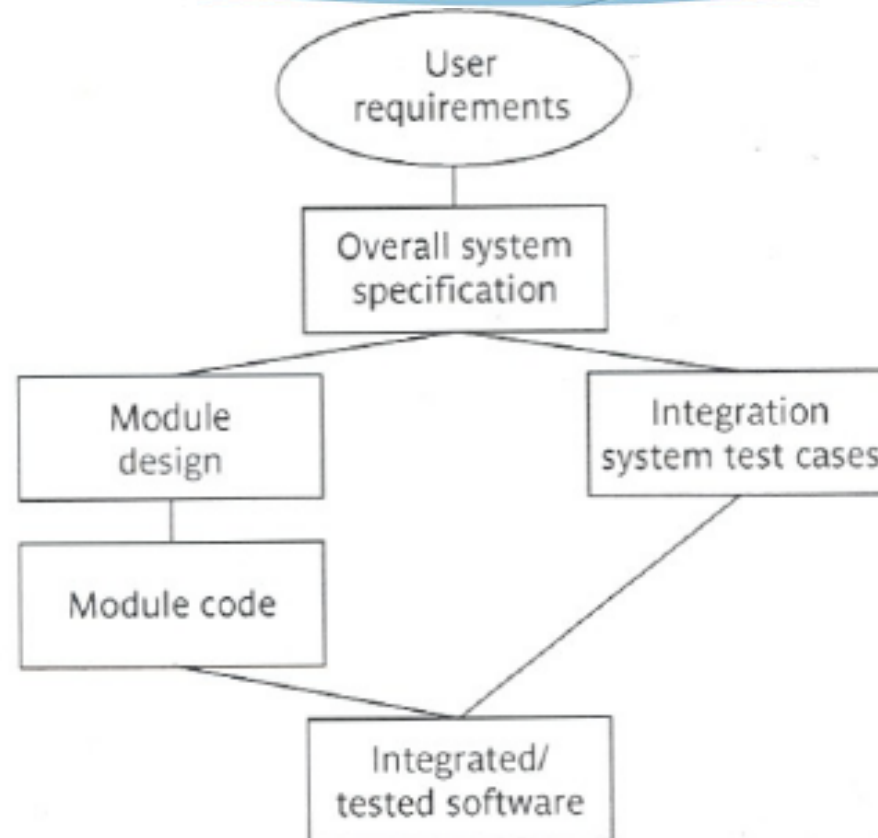# Step 4: (cont.)

- **4.2 Document generic product flows.**
  - To document the relative order of the products.
  - Some products will need other products to exist first

before they can be created.

E.g. the program code to be written need the program design, the program design needs the program specification

  - This can be portrayed in a **PFD** Product Flow Diagram.

Product Flow Diagram

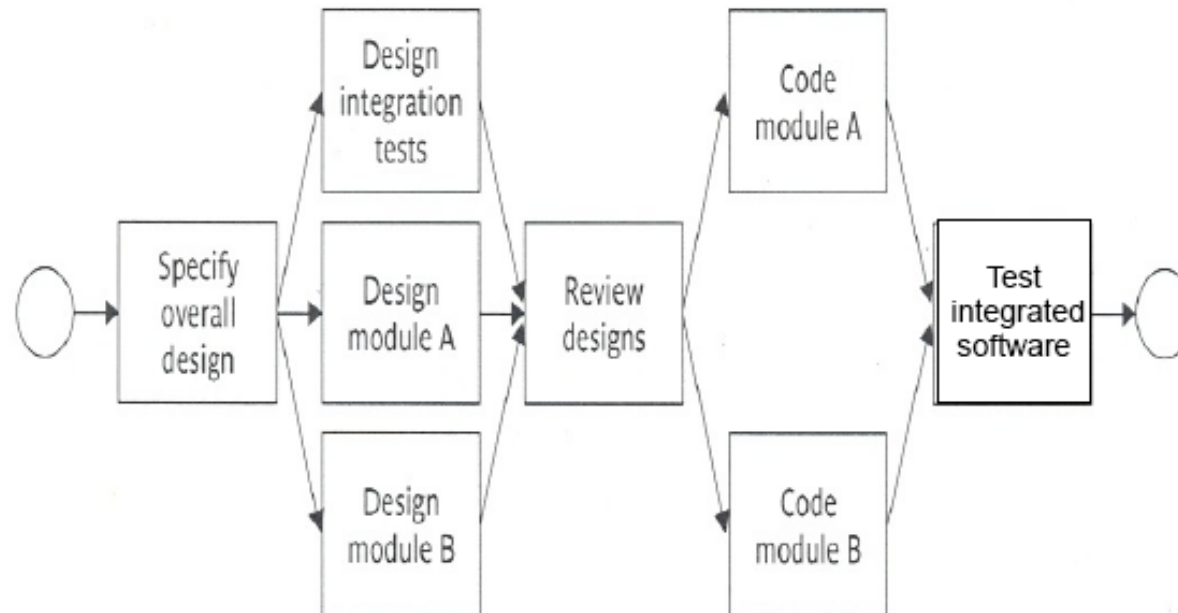# Step 4: (cont.)

- **4.3 Recognize product instances.**
  - Some fragments in the PFD relates to more than one instance of a particular type of product.

  - We should try to identify each of those instances.

  e.g. there could be only two modules related to the "module product"

Step 4: (cont.)

- **4.4 Produce an ideal activity network**

- **Activity network shows :**
  - the tasks that have to be carried out and,
  - their order of execution for the creation of a product.

- Activity networks don't take account of resource constraints.

Activity Network Diagram

Step 4: (cont.)

🔹 **4.5 Modify the ideal to take into account need for**

stages and checkpoints.

Checkpoints:
- To check compatibility of products of previous activities

Milestones or key activities:
- Which represent the completion of important stages of the project

Step 5: Estimate Effort for Each Activity

- **5.1 Carry out bottom-up estimates.**

  - need to estimate staff effort, time for each activity, and other resources

- **5.2 Revise plan to create controllable activities**.

  - Long activity: break it down.

  - Short activity: combine multiple small activities into one.

  - Ideal activity: make the activity about the length of the reporting period

Step 6: Identify Activity Risks

- **6.1 Identify and quantify the risks of each activity.**

  - Any plan is based on an assumption if the assumption is not correct this creates a risk to the plan.

  For each risk identify:
  - Importance, Likelihood and Damage.

Step 6: (cont.)

- **6.2 Plan risk reduction and contingency measures where appropriate**

    For the identified risks:
    - If (they didn't happen) yet then try to:
        - Avoid risks.
        - Reduce some of them.
    - If a risk materializes (happens) then
        - Use a contingency plan.

- **6.3 Adjust overall plans and estimates to take account of risks.**

    e.g. add new activities that will reduce risks.

Step 7: Allocate Resources (Staffing)
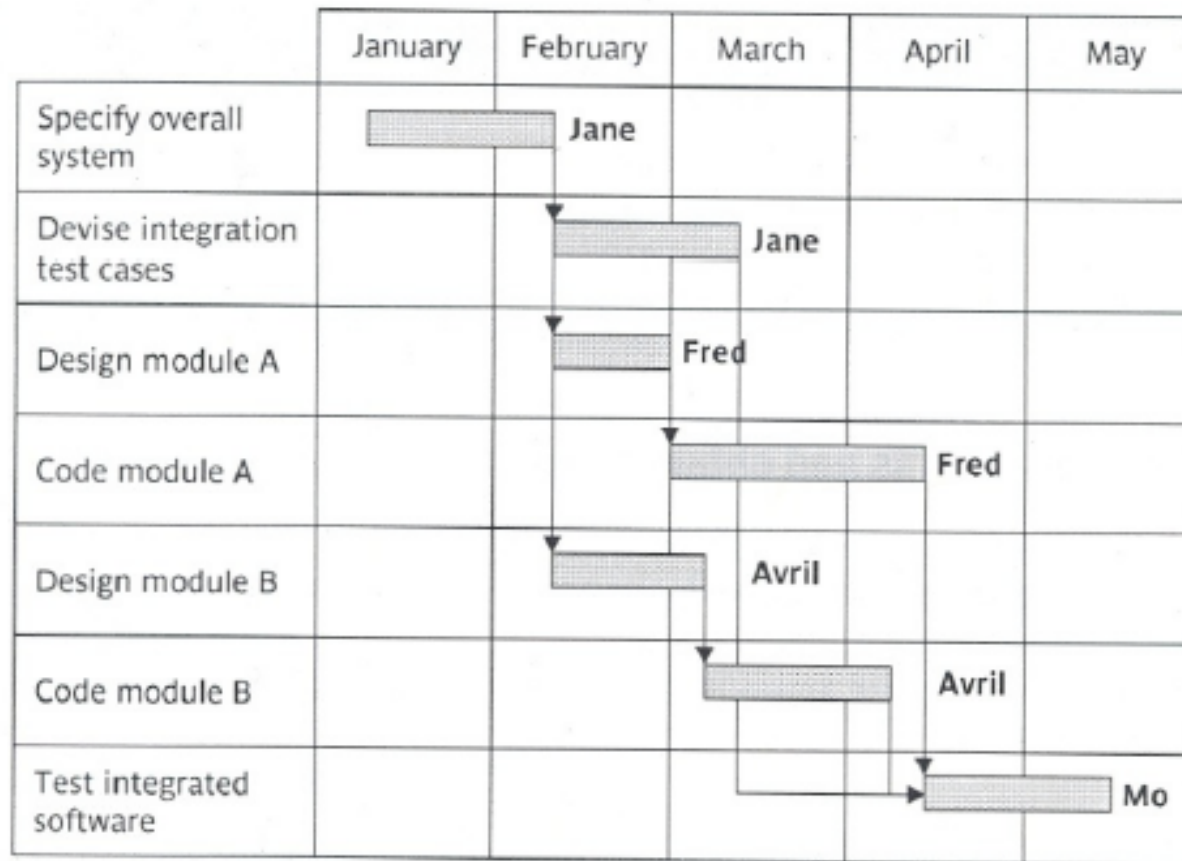
- **7.1 Identify and allocate resources**
  - type of staff needed for each activity.
  - staff availabilities are identified.
  - staff are provisionally allocated to task.
- **7.2 Revise plans and estimates to take into account resource constraints.**
  - staffing constraints.

  Gantt charts: unlike the activity network they give a clear picture of when activities will take place and highlights which ones will be executed at the same time.

Gant Chart

	January	February	March	April	May
Specify overall system	▬ Jane				
Devise integration test cases		▬ Jane			
Design module A		▬ Fred			
Code module A			▬ Fred		
Design module B		▬ Avril			
Code module B			▬ Avril		
Test integrated software				▬ Mo	

Step 8: Review/publicize Plan

- **8.1 Review quality aspects of the project plan.**
  - Each activity should have 'exit requirements' or sign off requirements
  - Each activity should have quality criteria.
  - Quality criteria : are quality checks that have to be passed before the product can be 'signed off' as completed.

- **8.2 Document plans and obtain agreement.**
  - all parties understand and agree to the commitments in the plan

Step 9/10: Execute plan/Lower-level planning

- Plans will need to be more detailed for each activity as it becomes due

- Detailed planning of later stages needs to be delayed because more information will be available nearer their start.

- But it is necessary to make provisional plans for more distant tasks. Why?