

### 2.3. TYPES of CHARTS for SCHEDULE PLANNING.

There are two main types of network diagrams in project management.

Gantt charts and PERT-charts are the examples of so-called PDM-diagrams.

**Precedence diagram method (PDM)** is a method of project schedule planning in which project activities (tasks) are represented by time stretches. In this method arrows showing the sequential order of tasks.

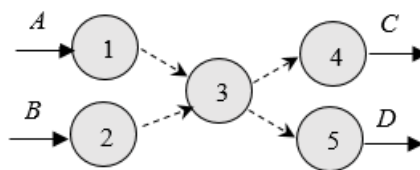
**Arrow diagram method (ADM)** is a method in which the vertices of the graphs are events (milestones), denoting the moments of beginning or ending of one or several activities. Each activity corresponds to two events related to it - the moment of work start (the beginning of the arrow) and the moment of work end (the end of the arrow).

Events are of 3 types:

- *initial*; no work is performed prior to this event;
- *intermediate*; there must be previous work and all this work has been done;
- *end* event; it completes the project execution.

There is one essential moment. Let's consider a conditional example with 4 works A, B, C and D, and works C and D can start only after works A and B are finished.

Then



We had to introduce event 3 because we do not know which of events 1 or 2 will end later. In addition, events 4 and 5 do not necessarily start immediately after event 3. This is sometimes indicated by dotted arrows.

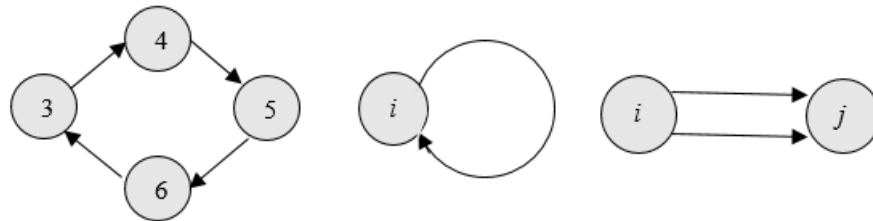
The basic rules of diagramming for the ADM method are as follows.

- All project events are numbered with *integers* (usually non-negative), preferably without skips.
- There must be *exactly one initial* event (no arrow enters it) and *exactly one final* event (no arrow leaves it).

- Any project work must lead *from the event with a lower number to the event with a higher number* (hence, in particular, it follows that there cannot be a closed sequence of work).

- The diagram should preferably be arranged so that the arrows point *from left to right*.

So, the following types of diagrams have no rights to exist:



Let's get back to the house construction project. Let us remind you that the project is a set of 4 activities: A is a construction of a foundation, B is a construction of a room 1, C is a construction of a room 2, D is roofing.

The table of followers has the following form:

Activities	Duration (days)	Activities-followers
A	5	B, C
B	8	D
C	6	D
D	4	—

Let's introduce the events:

0 - start of the project;

1 - completion of foundation construction (work A);

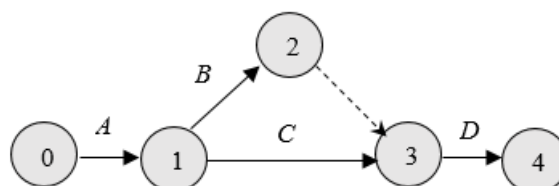
2 - completion of work B;

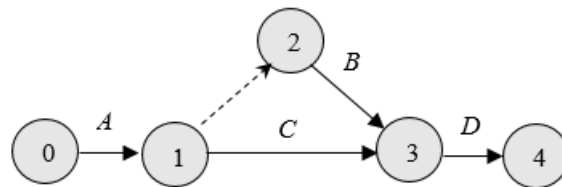
3 - completion of both works B and C;

4 - completion of the project.

In this case, the precedence of event 2 to event 3 does not mean that work B will be completed before work C.

Several different diagrams can be constructed, e.g:





The dotted line in the first case may denote that event 3 will actually occur strictly after event 2. In the second case, the dotted line indicates that work B will not be done immediately after event 1.

Let us *summarize*. There are two basic types of network diagramming techniques. ADM or Arrow Network Diagram and PDM or Precedence Network Diagram. In ADM, activities are shown as arrows while in PDM, activities are shown as nodes or boxes.