

# 605.601 Foundations of Software Engineering

## Fall 2020

### Module 02: Software Project Management

Dr. Tushar K. Hazra

[tkhazra@gmail.com](mailto:tkhazra@gmail.com)

(443)540-2230

# 605.601 Foundations of Software Engineering

## Course Module 02: Software Project Management

- Project Management Definition
- Goals and Objectives
- Process
- Key Elements of the Process

# Software Project Management

- Project management encompasses all the activities needed to plan and execute a project:
  - Deciding what needs to be done
  - Estimating costs
  - Ensuring there are suitable people to undertake the project
  - Defining responsibilities
  - Scheduling
  - Making arrangements for the work
- – ...

# Software Project Management

## Goals of Software Project Management

- End results of the project satisfy the customer's needs
- All the desired and the needed product/project attributes (quality, security, productivity, cost, schedule, etc.) are met
- Team members are operating effectively and at a high level of morale
- Required tools and other resources are made available and are effectively utilized

# Software Project Management

- **Four 'P's**: What are the “four Ps” to keep in mind as part of project management?
  - People - Team
  - Product – Business Value
  - Process - Activities
  - Plan – Schedule and Milestones

Which of these is most critical to a successful software project?

People

# Software Project Management

Project Management: People for Team Organization

What are four different paradigms to structure a team?

- Closed
- Random
- Open
- Synchronous

# Software Project Management

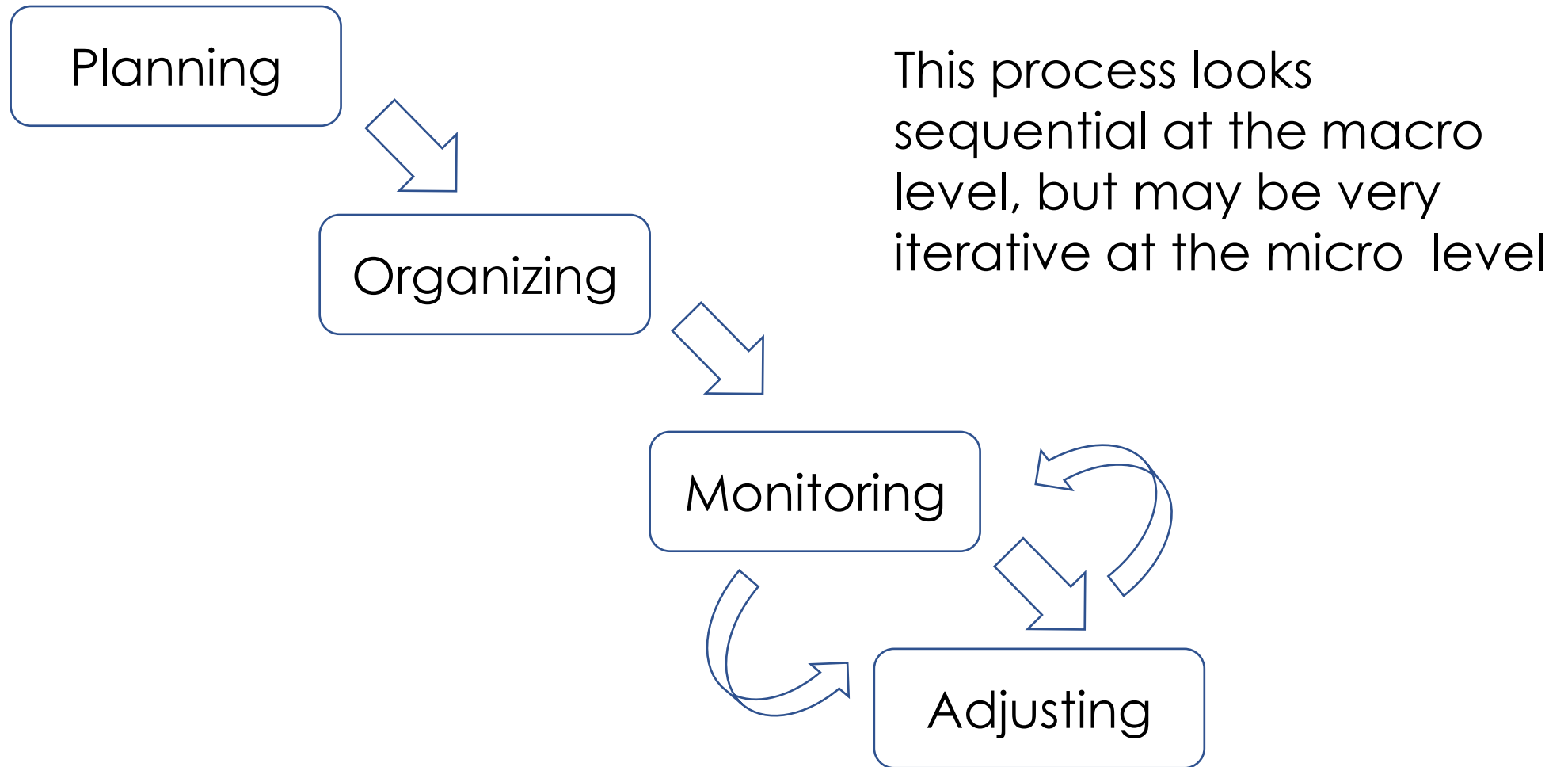
## Project Management: Process

- Why do we need project management process?
- Why can't we just follow one of the software development process and be left alone?

All projects – small and large – need project management because all projects need some degree of:

1. - Planning
2. - Organizing
3. - Monitoring of status
4. - Adjustment

# Software Project Management





# Software Project Management

## Planning

- The 1st step of project planning is to *understand the requirements of the project*  
This step itself may be a mini-project
- Then the following 4 steps are included in the rest of project planning:
  1. Perform Estimation of
    - the work effort,
    - the schedule, and
    - the needed resources
  2. Clearly define and establish measurable 'goals' for the project
  3. Determine the project resource allocations of
    - people,
    - process,
    - tools, and
    - facilities
  4. Identify and analyze the project risks

# Software Project Management

## Organizing

- Once a project plan is formulated or partially formulated, organizing may start
  - Organization structure needs to be designed
  - Human resource hiring needs to start and be completed along with acquisition of other resources
  - Any required education and training have to be completed

# Software Project Management

## Monitoring

Once the project is organized and set into motion, there still needs to be regular tracking to ensure that it is headed in the right direction. (Projects can not be left to coast along by itself.)

Three (3) main components of project monitoring include:

1. Project status information collection
2. Analysis and evaluation of collected information
3. Presentation and communication of the project status

# Software Project Management

## Adjusting

- It is highly unlikely that a software project progresses with no problem. As soon as the project status suggests potential problem, we must not be afraid to make changes.
- 3 main areas of adjustments are (or combinations of) :
  - *Resources*
  - *Schedule*
  - *Project content*