1 Definitions

- A software measurement is a piece of data that can be determined from examination from the software process or product artifacts. Examples: KLOC (thousands lines of source code); effort (number of person-hours worked)
- A software metric is a formula that takes as its input one or more measurements in order to provide a meaningful value related to the process or product. Example: Number of defects found per KLOC
- An indicator is a metric or a series of metrics that provide insight into a software project or process. Example: If the defects reported per KLOC after product delivery is decreasing from project to project over time, it is a likely indicator that software quality assurance activities with the software process are becoming more effective.

2. Metrics are useful because they provide quantifiable data concerning software development and maintenance.

3. Types of metrics
   - Size-oriented e.g. defects per KLOC
   - Function-oriented e.g. function points (user I/O, files, other external interfaces)

4. Applying metrics to:
   - Quality characteristics e.g. defect removal efficiency
   - Design e.g. McCabe’s complexity metric
   - Object-oriented systems e.g. number of operations and attributes in a class

5. One method of metric determination: Goal-Question-Metric (GQM)
   - Example:
     - Goal: To maximize customer support satisfaction
     - Question: Are there are consistent problems with the software?
     - Metric: Number of problem reports generated per day

6. GQM Exercise