Lecture 2 – What is Software Quality

• What is software?
• Software errors, faults and failures
• Classification of the causes of software errors
• Software quality – definition
• Software quality assurance – definition and objectives

Software is:
Computer programs, procedures, and possibly associated documentation and data pertaining to the operation of a computer system.

The nine causes of software errors are:
1. Faulty requirements definition
2. Client-developer communication failures
3. Deliberate deviations from software requirements
4. Logical design errors
5. Coding errors
6. Non-compliance with documentation and coding instructions
7. Shortcomings of the testing process
8. User interface and procedure errors
9. Documentation errors
Software quality is:

1. The degree to which a system, component, or process meets specified requirements.
2. The degree to which a system, component, or process meets customer or user needs or expectations.

Software quality assurance is:

1. A planned and systematic pattern of all actions necessary to provide adequate confidence that an item or product conforms to established technical requirements.
2. A set of activities designed to evaluate the process by which the products are developed or manufactured. Contrast with: quality control.
The objectives of SQA activities in software development

1. Assuring an acceptable level of confidence that the software will conform to functional technical requirements.
2. Assuring an acceptable level of confidence that the software will conform to managerial scheduling and budgetary requirements.
3. Initiation and management of activities for the improvement and greater efficiency of software development and SQA activities.

The objectives of SQA activities in software maintenance

1. Assuring an acceptable level of confidence that the software maintenance activities will conform to the functional technical requirements.
2. Assuring an acceptable level of confidence that the software maintenance activities will conform to managerial scheduling and budgetary requirements.
3. Initiate and manage activities to improve and increase the efficiency of software maintenance and SQA activities.