SCS 3108 – Software Project Management

About The Course

- Credits – 02
- 02 Lecture Hours per week
- Lectures – 02 Hour x 15 weeks = 30 Hours
- Evaluation – 30% Assignments, 70% Exam Paper
- Exam Paper – 02 Hours
  - 4 Compulsory Structured Essay Type Questions
- Assignments - To be announced

Course Outline

1. Introduction to Software Project Management	2 hrs
2. Management and Evaluation	2 hrs
3. Project Planning I	3 hrs
4. Project Planning II	2 hrs
5. Risk Management	3 hrs
6. Software Effort Estimation	2 hrs
7. Allocation of Resources	2 hrs
8. Monitoring and Control	2 hrs
9. Contract Management and Termination	2 hrs
10. Communication Management	2 hrs

1. Introduction to Software Project Management

After following this section you should be able to;

- Define what software project management is
- Compare s/w projects and other types of projects
- Describe typical issues of s/w projects
- Define the usual stages of a software project and management
- Identify the stakeholders and their roles
- Define the success criteria for a s/w project

What is a Project?

A project is a temporary endeavour undertaken to create a unique product, service, or result.

A sequence of unique, complex, and connected activities which

- has one goal or purpose and
- must be completed by a specific time,
- should be completed within budget, and
- according to specification.

Characteristics of a Project

- Non-routine tasks are involved
- Planning is required
- Specific objectives are to be met or a specific product is to be created
- The project has a pre-determined time plan
- Work is carried out for someone other than yourself

Characteristics of a Project contd..

- Work involves several specialism
- People are formed into temporary groups to carry out the task
- Work is carried out in several phases
- The resources that are available for use on the project are constrained
- The project is large or complex

More the factors apply → the more difficult the task will be.
More staff needs → requires more additional coordination

- What is the difference between software projects and other types of project?

Software Projects Vs Other Projects

- Invisibility
  - Physical artifacts such as bridges and roads are visible unlike a software product
- Conformity
  - Other projects interact with physical materials while software projects interact with human clients

Software Projects Vs Other Projects Contd.

- Complexity
  - per unit cost, software projects are more complex
- Flexibility
  - Software can be changed easily. Therefore, subject to change according to the needs or changes of other components

Classification of S/W Projects

- Objective based Vs Product based
- Compulsory user based Vs Voluntary user based
- Information Systems Vs Embedded Systems

Objective based Vs Product based

- An on-line voting system for general public to select the most popular sportsman of the year
- An on-line educational game for primary students
- A payroll system for a business organization
- An information and news website for a government ministry
- A software system for a survey to determine the mobile phone usage of selected government servants (in order to consider for a communication allowance):

Compulsory User-based Vs Voluntary User-based

- An on-line home delivery/take away food ordering system
- A payroll system for a business organization
- An information and news website for a government ministry
- An on-line educational game for primary students
- A CCTV camera-based surveillance system for a defense authority
- An on-line registration system for internal students at a university
- An on-line market survey system for a multi-national company

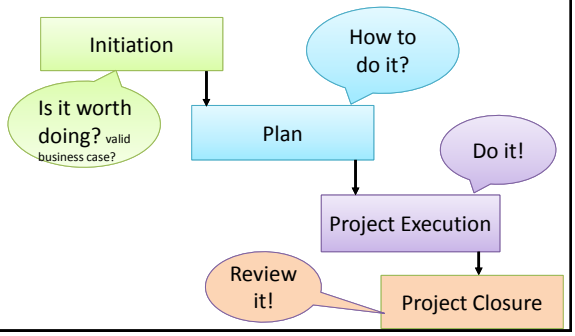
Information Systems Vs Embedded Systems

- Information systems –enable staff to carry out office processes
  - E.g. Stock control system
- Embedded systems- control machines
  - E.g. A system to control air conditioning equipment in a building
- Systems having elements of both
  - E.g. A stock control system which can control an automated warehouse

Contract Management and Technical Project Management

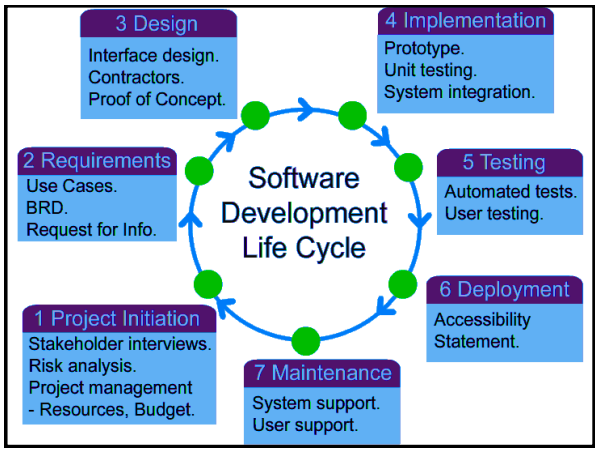
- Project Manager in Client Organization
  - Contract Supervision
- Project Manager in Software Supplier
  - Technical Management

Activities Covered by Software Project Management

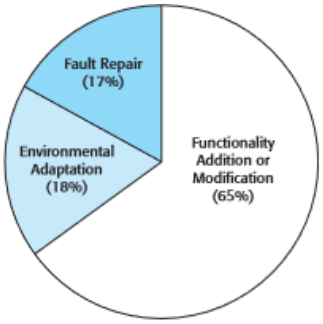


Plans, Methods and Methodologies

- Method- relates to a type of activity
- Plan – takes the method
- Methodology- Group of methods or techniques
- Planning involves
  - Selecting a suitable method
  - Convert methods to real activities
  - Define start and end date of each activity
  - Define who will carry it out
  - Identify what tools and materials will be used



Software maintenance effort distribution



Functionality addition or modification – 65%

Environmental adaptation – 18%

Fault repair – 17%

Some Causes of Project Failure

1. Poor Preparation
2. Inadequate Documentation and Tracking
3. Bad Leadership
4. Failure to Define Parameters and Enforce Them
5. Inexperienced Project Managers

Some Causes of Project Failure ….

6. Inaccurate Cost Estimations
7. Little Communication at Every Level of Management
8. Culture or Ethical Misalignment
9. Competing Priorities
10. Disregarding Project Warning Signs

Project stakeholders

- Internal to the project team
  - Be under the direct control of the project leader
- External to the project team but within the same organization
  - Users of the system who can do system testing
- External to the team and the organization
  - Users of the system –customers or contractors

Exercises

1. Remind the software project you carried out during your 2nd Year.
   1. What type of software project was it?
   2. List the problems that you have encountered when you engaged with software development project.
   3. How could have you minimized the effect of the problems you stated in question 2.
2. UCSC is going to outsource the development of a library management system.
   1. Identify the stakeholders of this system.
   2. What would be the objective of this project?