

NEW HORIZON COLLEGE OF ENGINEERING
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

GUEST TALK SERIES -ODD SEM (2019-2020)

Subject: Software Engineering

Expert name: Mr. Darpan Majumder

Audience: V

Date: 26-10-2019(10:00AM-12:00PM)

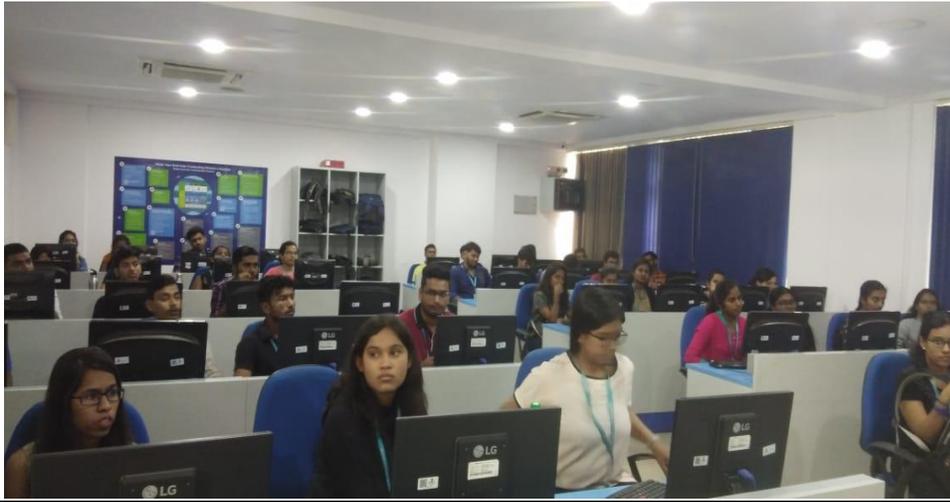
The department of Information Science and Engineering has conducted Expert talk on the topic “Software Engineering and best practices in Industry” for the 5th semester students on 26th OCTOBER, 2019 under the supervision of ISE Head of the department, Dr.Anandhi R J at ISE department class room 503. The expert speaker, Mr. Darpan Majumder, Symbol Technologies India Private Limited, Bangalore was invited to conduct the same.

Speaker is multi skilled professional with 8+ years of experience spread across database in IT Sector and in software engineering. The need for database with the Real time applications was considered as the key area.

VARIOUS SESSIONS THROUGHT THE PROGRAM:



Expert talk on Database management systems by Mr. Darpan Majumder



TOPICS COVERED:

- ✓ Introduction of Software Engineering
- ✓ SE techniques and methods
- ✓ Best practices

➤ Software Engineering Introduction:

Software engineering is an engineering branch associated with development of software product using well-defined scientific principles, methods and procedures. The outcome of software engineering is an efficient and reliable software product.

Software project management has wider scope than software engineering process as it involves communication, pre and post delivery support etc.

The initial impact of outsourcing, and the relatively lower cost of international human resources in developing third world countries led to a massive migration of software development activities from corporations in North America and Europe to India and later: China, Russia, and other developing countries. This approach had some flaws, mainly the distance / timezone difference that prevented human interaction between clients and developers and the massive job transfer. This had a negative impact on many aspects of the software engineering profession. For example, some students in the developed world avoid education related to software engineering because of the fear of offshore outsourcing (importing software products or services from other countries) and of being displaced by foreign visa workers. Although statistics do not currently show a threat to software engineering itself; a related career, computer programming does appear to have been affected. Nevertheless, the ability to smartly leverage offshore and near-shore resources via the follow-the-sun workflow has improved the overall

operational capability of many organizations. When North Americans are leaving work, Asians are just arriving to work. When Asians are leaving work, Europeans are arriving to work. This provides a continuous ability to have human oversight on business-critical processes 24 hours per day, without paying overtime compensation or disrupting a key human resource, sleep patterns.

✓ SE techniques and methods

Considered as the traditional method of explaining the software development process in software engineering, waterfall model happens to clarify the process into a linear flow with a specified sequence to let the users understand that further level is made progressive on completion of the previous one.

As an innovative approach, the agile software development methodology is used for articulating a well-organized project management procedure allowing for recurrent alterations.

Certainly, such type of a methodology is one theoretical outline for undertaking several software engineering projects.

Another good thing about it is that it minimizes peril by creating software in short time boxes, known as iterations, which happen to last from one week to one month.

Aimed at providing quick results, rapid application development is meant to give excellent development processes with the assistance of other development approaches.

It is created to take the maximum advantage from the development software.

Undoubtedly, it is designed to augment the workability of the whole software development procedure for highlighting the participation of an active user.

Hiring for this kind of development is not straightforward, because there are many factors which you need to take into consideration. This article from Collectiveray discusses a few ways how to find app developers for your next project.

✓ Best Practices

Best Practices address the root causes of poor software development

1. Develop Iteratively

- Critical risks are resolved before making large investments
- Initial iterations enable early user feedback
- Testing and integration are continuous
- Objective milestones provide short term focus

2. Manage Requirements

- Requirements are dynamic - expect them to change during software development

- User's own understanding of the requirements evolves over time
- Gain agreement with user on what the system should do and not how
- Maintain forward and backward traceability of requirements

3. Use Component Based Architecture

- Using components permits reuse
- Choice of thousands of commercially available components
- Improved maintainability and extensibility
- Promotes clean division of work among teams of developers

4. Visually Model Software

- Visual modeling improves our ability to manage software complexity
- Capture the structure and behavior of components
- Hide or expose details as appropriate for the task
- Promote unambiguous communication

5. Verify Software Quality

- What is quality? - The characteristic of producing a product which meets or exceeds agreed upon requirements by some agreed upon objective measures.
- Software problems are 100 to 1000 times more costly to find and repair after deployment
- Develop test suites for each iteration and test for -
 - Functionality
 - Reliability
 - Performance

6. Control Changes to Software

- Without explicit control parallel development degrades to chaos
- Decompose the architecture into subsystems and assign responsibility of each subsystem to a team. Establish secure workspaces for each team i.e. each team is isolated from changes made in other workspaces.
- Establish an enforceable change control mechanism where
 - Change requests are prioritized
 - Impact of the change request is assessed
 - Plan put in place to introduce change in a particular iteration

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