O'ZBEKISTON RESPUBLIKASI AXBOROT TEXNOLOGIYALARI VA KOMMUNIKATSIYALARINI RIVOJLANTIRISH VAZIRLIGI

TOSHKENT AXBOROT TEXNOLOGIYALARI UNIVERSITETI

FARG'ONA FILIALI

" KOMPYUTER INJINIRINGI " FAKULTETI
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"TIZIMLI DASTURLASH"
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Theme: Software Engineering

Plan:

1.What is software engineering?

2.Profesion software engineering purpose and tasks.

3.Parts of software engineering.

I study at Tashkent University of Information Technology.

There 6 faculties at Tashkent University of Information Technology : Computer Engineering ,Telecommunication Engineering,Programming engineering, Economics and menagment, Television Technologies ICT sphere and Professional Education.

I study in faculty Programming Engineering master first course.

I want professional spesalist this is spesily, because I chose this is spesily.

Engineering discipline Engineers make things work. They apply theories, methods, and tools where these are appropriate. However, they use them selectively and always try to discover solutions to problems even when there are no applicable theories and methods.

All aspects of software production Software engineering is not just concerned with the technical processes of software development. It also includes activities such as software project management and the development of tools, methods, and theories to support software production.

The seminal definition:

[Software engineering is] the establishment and use of sound engineering principles in order to obtain economically software that is reliable and works efficiently on real machines.

The IEEE definition:

Software Engineering: - The application of a systematic, disciplined, quantifiable approach to the development, operation, and

maintenance of software; that is, the application of engineering to software. The study of approaches as in.

Computer programs, data structures and associated documentation. Software products may be developed for a particular customer or may be developed for a general market.

Good software should deliver the required functionality and performance to the user and should be maintainable, dependable and usable.

Software engineering is an engineering discipline that is concerned with all aspects of software production.

Computer science focuses on theory and fundamentals; software engineering is concerned with the practicalities of developing and delivering useful software.

Coping with increasing diversity, demands for reduced delivery times and developing trustworthy software.

Roughly 60% of software costs are development costs, 40% are testing costs. For custom software, evolution costs often exceed development costs.

While all software projects have to be professionally managed and developed, different techniques are appropriate for different types of system. For example, games should always be developed using a series of prototypes whereas safety critical control systems require a complete and analyzable specification to be developed. You can't, therefore, say that one method is better than another.

The web has led to the availability of software services and the possibility of developing highly distributed service-based systems. Web-based systems development has led to important advances in programming languages and software reuse.

The economies of ALL developed nations are dependent on software.

More and more systems are software controlled

Software engineering is concerned with theories, methods and tools for professional software development.

Expenditure on software represents a significant fraction of GNP in all developed countries.

Software costs often dominate computer system costs. The costs of software on a PC are often greater than the hardware cost.

Software costs more to maintain than it does to develop. For systems with a long life, maintenance costs may be several times development costs.

Software engineering is concerned with cost-effective software development.

Generic products

> Stand-alone systems that are marketed and sold to any customer who wishes to buy them.

> Examples – PC software such as graphics programs, project management tools; CAD software; software for specific markets such as appointments systems for dentists.

Customized products

> Software that is commissioned by a specific customer to meet their own needs.

> Examples – embedded control systems, air traffic control software, traffic monitoring systems.

Generic products

The specification of what the software should do is owned by the software developer and decisions on software change are made by the developer.

Customized products

The specification of what the software should do is owned by the customer for the software and they make decisions on software changes that are required.

Frequently asked questions about software engineering

Question	Answer
What is software?	Computer programs and associated documentation. Software products may be developed for a particular customer or may be developed for a general market.
What are the attributes of good software?	Good software should deliver the required functionality and performance to the user and should be maintainable, dependable and usable.
What is software engineering?	Software engineering is an engineering discipline that is concerned with all aspects of software production.
What are the fundamental software engineering activities?	Software specification, software development, software validation and software evolution.
What is the difference between software engineering and computer science?	Computer science focuses on theory and fundamentals; software engineering is concerned with the practicalities of developing and delivering useful software.
What is the difference between software engineering and system engineering?	System engineering is concerned with all aspects of computer-based systems development including hardware, software and process engineering. Software engineering is part of this more general

process.

Frequently asked questions about software engineering

Question	Answer
What are the key challenges facing software engineering?	Coping with increasing diversity, demands for reduced delivery times and developing trustworthy software.
What are the costs of software engineering?	Roughly 60% of software costs are development costs, 40% are testing costs. For custom software, evolution costs often exceed development costs.
What are the best software engineering techniques and methods?	While all software projects have to be professionally managed and developed, different techniques are appropriate for different types of system. For example, games should always be developed using a series of prototypes whereas safety critical control systems require a complete and analyzable specification to be developed. You can't, therefore, say that one method is better than another.
What differences has the web made to software engineering?	The web has led to the availability of software services and the possibility of developing highly distributed service-based systems. Web-based systems development has led to important advances in programming languages and

	software reuse.

Essential attributes of good software

Product characteristic	Description
Maintainability	Software should be written in such a way so that it can evolve to meet the changing needs of customers. This is a critical attribute because software change is an inevitable requirement of a changing business environment.
Dependability and security	Software dependability includes a range of characteristics including reliability, security and safety. Dependable software should not cause physical or economic damage in the event of system failure. Malicious users should not be able to access or damage the system.
Efficiency	Software should not make wasteful use of system resources such as memory and processor cycles. Efficiency therefore includes responsiveness, processing time, memory utilisation, etc.
Acceptability	Software must be acceptable to the type of users for which it is designed. This means that it must be understandable, usable and compatible with other systems that they use.

Software engineering is an engineering discipline that is concerned with all aspects of software production from the early stages of system specification through to maintaining the system after it has gone into use.

Engineering discipline

- **Using appropriate theories and methods to solve problems bearing in mind organizational and financial constraints.**

All aspects of software production

- **Not just technical process of development. Also project management and the development of tools, methods etc. to support software production.**

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