OPEN SOURCE INITIATIVES IN THE DEVELOPMENT OF COMPUTER SCIENCE /IT CURRICULAR: A CASE FOR CAPACITY BUILDING FOR THE KNOWLEDGE ECONOMY

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Presentation Outline

- Introduction
- The current Problems/challenge
- Open Source Initiative
- Benefits/Limitations of Open Source
- The proposed Curriculum
- Content Structure
- Implementation Concerns

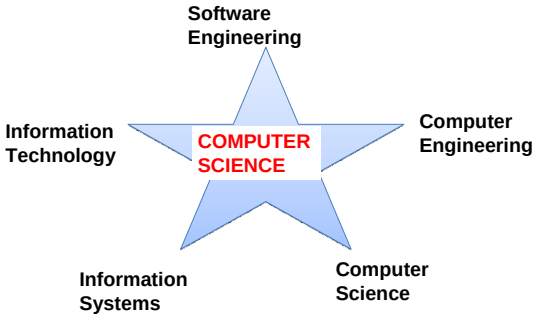
1.0 Introduction

Software Development

Fundamental Rules of Information & Knowledge Processing

For the **Knowledge Economy**

2.0 Problem Statement



2.0 Problem Statement(cont.)

BUT!

1.Teaching methodology has **NOT** changed

i. Emphasis on small programs(<100 lines)
ii. Use of Languages not in use- Pascal
iii. "Fresh Programs" For each course/assign
iv. Lack of modern development tools
v. Belief that if a program "works" it is acceptable
vi. No emphasis on analytical skills

2.0 Problem Statement(cont.)

2. Not Clear on the balance of no. of Units/time-Semester
3. Focus by faculty on theoretical coverage without practical realisation
4. **Lack of practical skills ,experience & detailed knowledge for Technical work and Research work.**

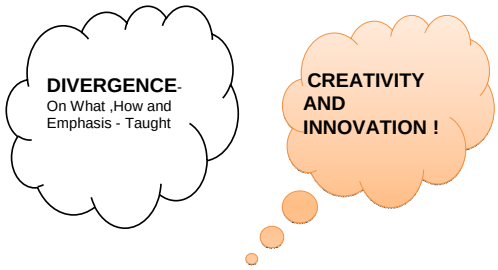
2.0 Problem Statement(cont.)

YET! The Real World is the Antithesis

I. Systems are often Millions of Source lines
II. Tasks focus on the process rather than completion of product
III. Tool Rich Environments
IV. Development effort by large teams
V. Open Source Collaboration

2.0 Problem Statement(cont.)

RESULTS



3.0 Open Source Software(OSS)

'Free' Software with certain Essential Freedoms

- Use the program for any purpose
- Modify for specific needs
- Re-distribute at no charge
- Improve/modify and release version

3.0 Open Source Software(OSS)

The Open Source Phenomenon!

- Self-organisation- unparrallel,unstructured-complex problem solving
- No direct monetary compensation
- Collaboration-The Internet has created a forum for expression and inclusion.
- Consists of developers, programmers and students.

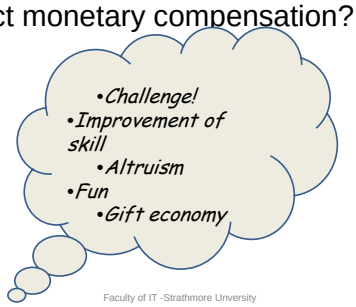
3.0 Open Source Software(OSS)

- Current Growth of Projects is Staggering!

Number of Projects	Source
Over 40,000	http://freshmeat.net
Over 90,000	http://sourceforge.net
Over 5400 Perl modules	www.cpan.com

3.0 Open Source Software(OSS)

- Why participate in projects without direct monetary compensation?



3.0 OSS- Benefits

1. **Quality of Software**-Multiple solutions
2. **Development Speed**-more people involved
3. **User involvement-** Users are valued assets
4. **Collaboration**-Large 'self-organising' community-geographically dispersed

3.0 OSS- Limitations

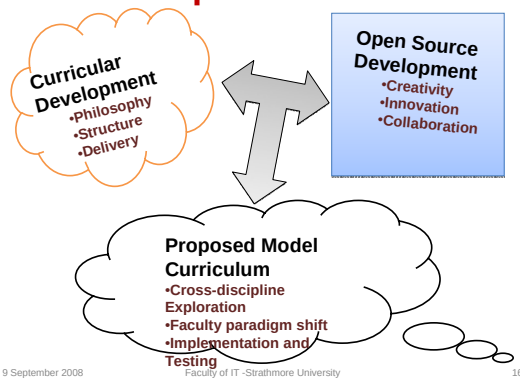
1. **Speed of development**-absence of a mgt structure
2. **Scope Creep-**Credibility of programmer more important-ego and meritocracy
3. **Releases-**Increased iterations& compatibility
4. **High Entry level** –For students
5. **Support Issues.**

3.0 OSS- Opportunity

Open Source collaborative Environment

- **Creativity, Networking & innovation**
- **Basis for Technological Development& New business opportunities**

4.0 Proposed Solution



4.1 Education Domain & OSS

Education Domain	Reasons
Economic	-Eases the burden of software licensing -Open Sources costs less - Independence
Technological	-Reliable and secure technology - Open architecture
Pedagogical	-Possibility of using different learning scenarios - Web-based learning - Modular and multilingual - Variety of tools
Philosophic	-Collaborative approach - Anti-monopolistic - Free as education

4.2 Curriculum Philosophy

1. Use of Knowledge & skills acquired
2. Hands on experience –open source development process
3. A strong pre-requisite structure emphasis on Interdependency of content
4. **Learning experiences- support interactions, networking, & development of community of Interests- OSS & Interest**

4.3 Content Structure

Focus on Knowledge and Skills

Exposure- Introduction to Concepts

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Mastery- Understanding of Concepts

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Familiarity- Ability test and apply

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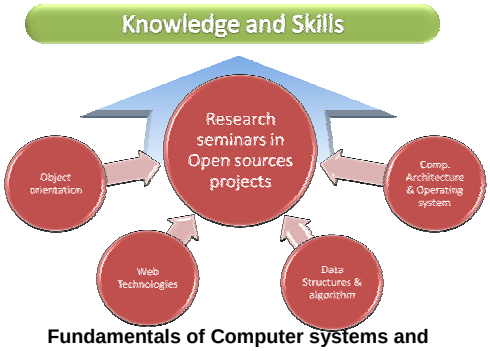
Application- Open source Projects

Core units interrelationship



Fundamentals of Computer systems and

5.0 Research Direction

1. Focus on paradigm shift in faculty/researchers
2. Est. Exact nature of the curriculum problems
3. Prioritise needs and Planning
4. Extensive consultation/collaboration

QUESTIONS!