BU

Bournemouth
University

School of Design, Engineering & Computing

Project Brief for Wi-Fi, WiMAX and LTE e-Learning Aid

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1 Project Brief

1.1 Project Background

An introduction to Wi-Fi, WiMAX and Cellular networks is currently taught under Advanced Networks Module through lectures supported by PowerPoint presentations and lecture notes which are posted on the student site, my BU.

This proposal seeks to extend, widen and enrich the variety in the delivery of the content. It offers an e-learning aid on Wi-Fi, WiMAX and Long Term Evolution of cellular networks which will feature videos, animation and opportunities for self assessment by way of an on-line quiz.

1.2 Objectives

The objective of this project is to offer academic material on the Web in various multimedia formats that supports students of Advanced Networks, helping them to grasp the concepts and challenges posed by Wi-Fi, WiMAX and Long Term Evolution of cellular networks.

It is envisaged that the material will enable both self study and further support the lectures in this exciting area.

The solution, while catering for full time students, acknowledges that there could be more part time and distance learning students in the future with the changing profile of Higher Education costs.

As the technology and standards are still evolving especially in the area of LTE-Advanced, the solution must be easily maintainable and allow for material to be updated.

1.3 Requirements

The key requirement is for delivery by 6th May but other deadlines may include the schedule for planning courses and content for academic year 2011/2012.

The solution should be able to run on standard browsers Internet Explorer, Firefox, Safari etc with minimal additional software.

1.4 Scope

The scope of this project includes

1. Brief review of Multimedia in Higher Education
2. Study and Research of Wi-Fi, WiMAX, LTE and LTE-Advanced
3. Comparison of the Technologies and how they compete and/or complement each other
4. A software project following the appropriate design methodology delivering a multimedia e-learning solution.
5. The solution should be designed for standard Laptops and desktop (i.e. no high end processors or special graphics cards – the solution should run on a 3 year old PC)

Exclusions in this project

1. Whereas consideration will be given to ensuring that the multimedia solution is not too large and than it can run efficiently over a 1 Megabit ADSL/3G broad band connection, no sizing is being carried out on Web-servers, Media Servers or any database servers.
2. The initial solution is not designed to run on small mobile devices like I-phones, Blackberries etc are currently out of scope due to their small screen size.

1.5 Interfaces Affected

In the first phase of the project it is not envisaged that any data on students will be captured but considerations should still be given to security. (Future versions might provide the lecturer anonymous information of the progress students and information on areas where they find the subject matter challenging)

If this Multimedia project is widely rolled out and becomes template for course delivery those responsible for capacity planning must be informed because of potential impact on networks, servers etc.

1.6 Approach

The approach used will be a phased approach.

1. Phase one: brief review of Multimedia in Higher Education
2. Phase two: development of content – study and research into Wi-Fi , WiMAX and LTE
3. Phase three: design and development of e-learning solution using appropriate software project delivery methodologies.

1.7 Risks

The student/author did not take Advanced Networks Module in final year so:

1. This puts the development "content" at potential risk as the student is studying and researching this subject independently
2. Student is relying on feedback from colleagues who did take this course to explain which areas they found challenging and where a learning aid would be beneficial.

1.8 Alternative Solutions

Alternative solutions could include

1. Recording lectures on video camera and using minimal multimedia software
2. Distributing information by CD or DVD.

1.9 Open Issues

None

1.10 Profitability /Project Justification

In industry, projects are normally decided on by their Return On Investment (ROI). Industries usually often have an internal return rate of say 15% that projects have to exceed. The Net Present Value (NPV) is then calculated. If this is positive, the projects are then ranked in order to compete for the available capital and resources.

This project is a final year dissertation project so its approval is based on its academic content and suitability as final year project.

However, potential costs include:

1. Software Development License costs.
2. Roll out and deployment Costs

Potential benefits include:

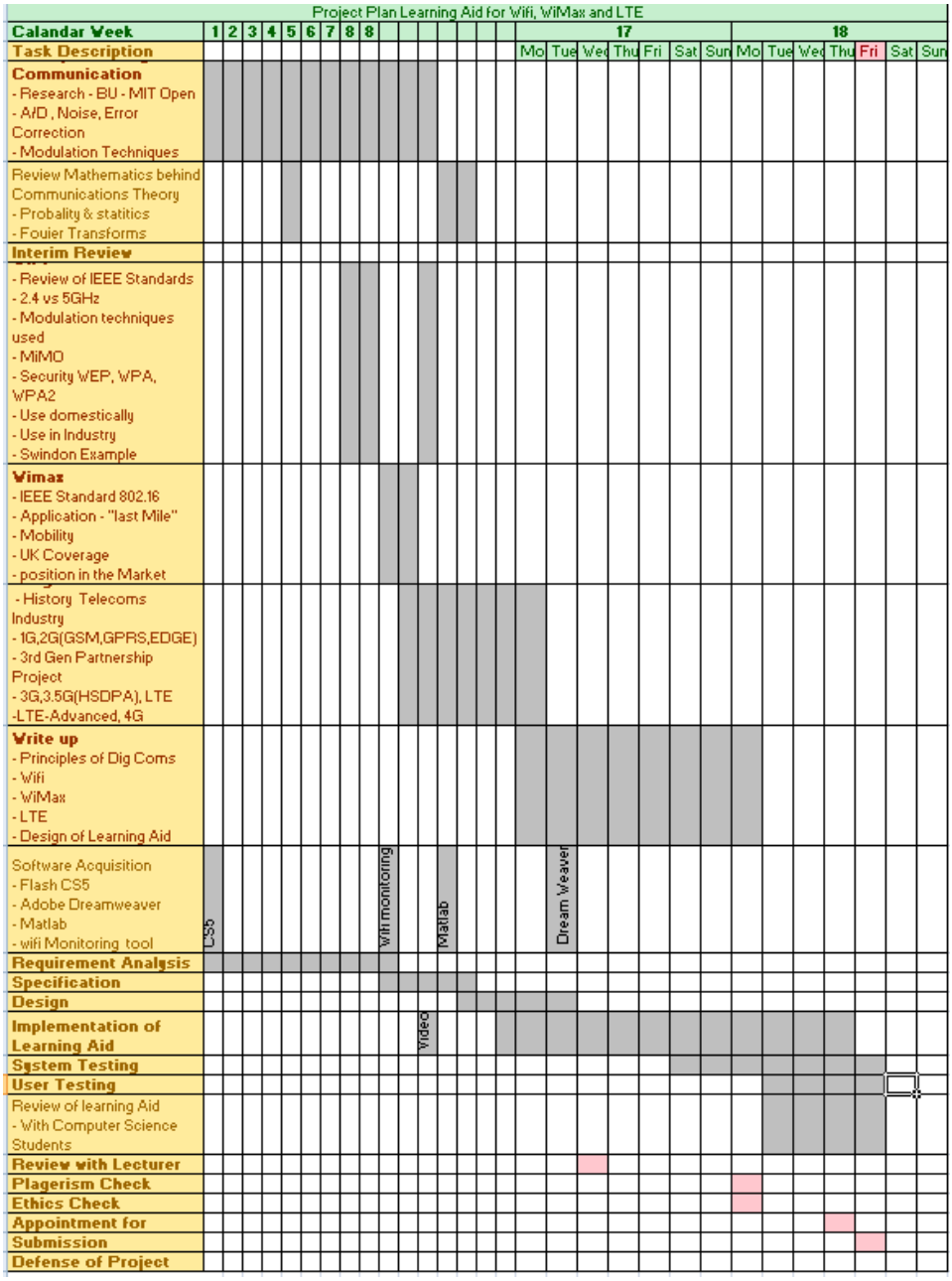
1. Learning Outcomes – does multimedia improve student success rate?
2. Does Supporting Multimedia allow for larger lectures /reduced course provision cost?
3. Attractiveness of Bournemouth University to potential students.

1.11 Project Organisation

From my placement year in industry I learnt that individuals have specific roles on projects, i.e. Project Leader, Software Development, Quality Assurance, Test Manager, Deployment Manager, etc

In this project, I will be performing multiple roles under the guidance of the project Supervisor

1.12 Project Planning



1.13 Stake Holders

Client	Dr. Reza Sahandi
Other Stake Holders	Bournemouth University Students
Supervisor:	Dr. John Kanyaru
Project Delivery	Keith Amoah