

# SWAS-SOFTWARE AND WEB APPLICATIONS SECURITY

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## ABSTRACT

University graduates with strong technical hands on skills to develop highly secure software and web systems are in high demand in industry. This project is focused on designed and developed State-of-Art Courseware and appropriate learning paradigm in software and Web applications security for computer science and computer information systems students. In this we developed curriculum includes motivation of attackers, hacker tools, protection and defense mechanisms, secure programming styles for software and Web system's development.

SWAS courses are included into undergraduate and graduate academic programs – concentrations – of the department of Computer Science and Information Systems at Bradley University including a) undergraduate and graduate concentrations in Software, Web and Computer Network Security, and b) undergraduate and graduate concentrations in Mobile Computing. The main topics of developed curriculum include motivation of attackers, modern treats and vulnerabilities in software and Web systems, categories of computer attacks, types of computer attacks, hacker tools, protection and defense mechanisms, secure

programming styles for software and Web systems' development.

A key characteristic of developed SWAS courses is active utilization of highly effective learning-by-doing paradigm of education with strong emphasis on technical skills and hands- on experience of students. And it is aimed at concepts, models, methods, technologies, and tools used to design, develop, test, implement, and maintain highly secure software and Web systems

## Keywords

Cyber crime,Cyber Attacks, Security Effectiveness Score(SES),ComputerAttacks,WebBrowser,Authentications,Vulnerabilty,Secure Software.

## 1. INTRODUCTION

Most software and web applications that are critically important to the way organizations and companies operate are connected to a network, making them vulnerable to computer attacks. Unfortunately, a successful computer attack through various software applications can do significant damage to organizations,

institutions, companies and businesses.

In accordance with the “2012 Cost of Cyber Crime Study: United States” by the well-known professional organization in cyber-security – the Ponemon Institute: “Cyber crimes continue to be very costly for organizations. The participating companies [in five different countries – USA, UK, Germany, Japan and Australia] experienced 102 successful attacks per week and 1.8 successful attacks per company per week.

Multiple reports by various professional organizations and agencies in cyber security motivated us to propose, design, develop, implement, teach and methodically test the state-of-the-art undergraduate and graduate curriculum and courseware in SWAS

As a result, there is a need for a design and development of state-of-the-art Software and Web Application Security (SWAS) courseware that will help computer science and computer information systems to become well educated and technically skilled specialists in software and web application’s security.

### 1.1 Existing Project

Most of the web applications are important to the organizations and companies operate are connected to a network. Computer attacks through software applications can do significant damage to the organizations, institutions, companies and businesses. There is high demand in various organizations, industry and business for technically skilled specialists in software and web applications to implement high secure software and web systems and applications.

### 1.2 Proposed model

In Proposed System we are developing a State-of-Art software and web applications courseware that will help computer science and computer information systems students to become well educated and technically skilled specialists in software and web applications security.

In this project four modules are there. Here the instructors need to register first for authentication. After successful login instructors can access the system, then he can add/remove topics and sub topics, add/delete contents for those topics and he can also add/delete the exam paper.

In the same way students also need to register first for authentication. After successful login students can access the system. Here the courseware is divided into graduate and under graduate programs. Based on their requirement students can login into it. Here the students can download the course materials, write the exams and they can view their results immediately.

## 2. MODULES

**Module 1:** Authentication and authorization required for the students and instructors who Wants to get connected.

Students and instructors who wants to get connected with the site first need to register in that. In this module, After registration authentication and authorization is required for the students (Eg: Students who wants to read/download the course materials and who wants to write the exam etc) who wants to get connected.

In the same way authentication and authorization is also required for instructors (Eg: Instructors who wants to upload the course materials or exam papers).

**Module 2:** The course ware is divided on the basis of graduates and undergraduates.

Depending on which user is logged in the respective syllabus and is displayed.

All the course materials are uploaded by instructors. In this module the courseware is divided on

the basis of graduates and undergraduates. Based on their requirement students can login into it and they can read or download those course materials.

**Module 3:** Users can login into the website they can write the test automatically the

timer will be start after completion of the test he/she can see the result.

Tests are uploaded by instructors. In this module students who want to write the test can login and write the test. Whenever they start the writing exam then automatically the timer will start. Once the time is completed timer automatically stops the exam. And after completion test we can view the results immediately.

**Module 4:** Users can view/download the materials based on their interest.

In this module , After successful login into their accounts students can view/download the materials based on their interest.

### 3.RESULTS



Fig.3.1 Home Page

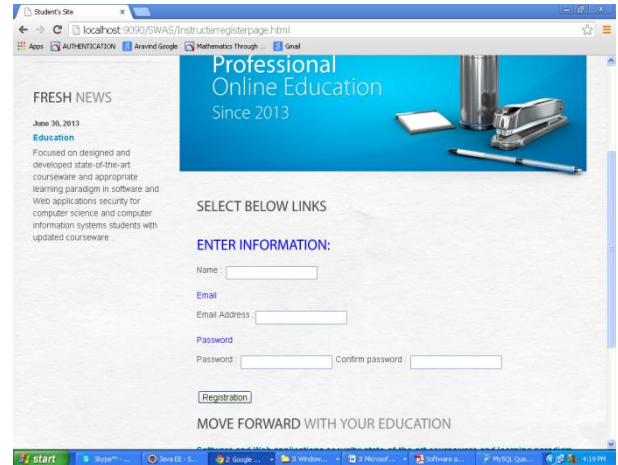


Fig. 3.2 Instructor Registration

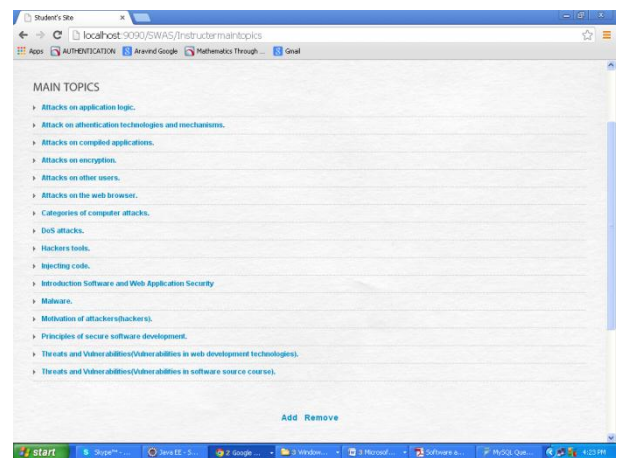


Fig.3.3 Instructor Graduates Main Topics Screen

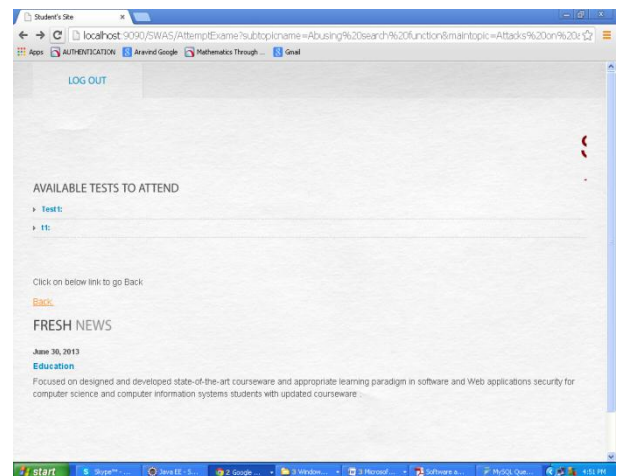


Fig.3.4 Attempt Exam page

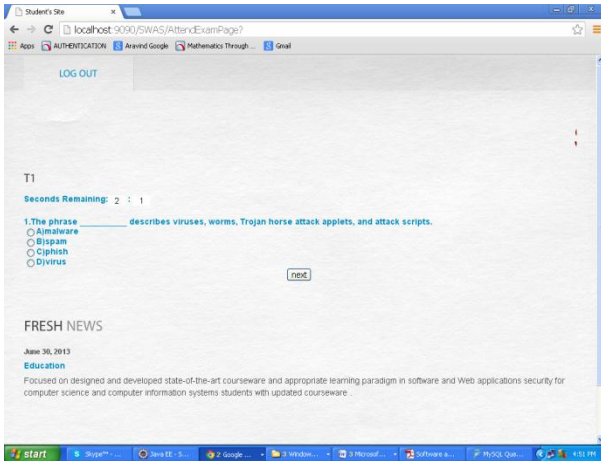


Fig.3.5 Exam paper

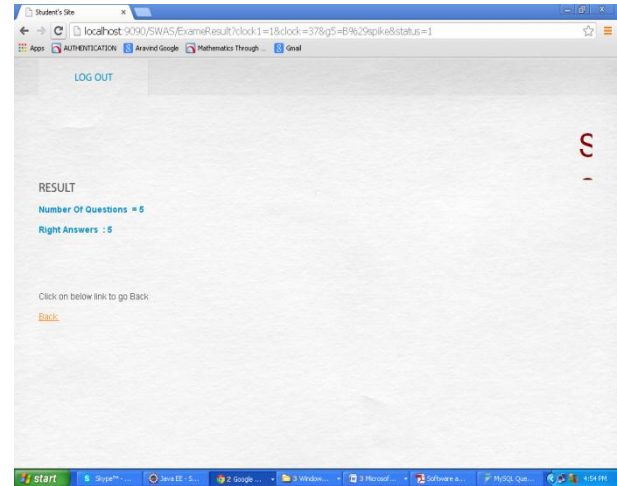


Fig.3.6 View Result

#### 4. CONCLUSION

In this project four modules are there. Here the instructors need to register first for authentication. After successful login instructors can access the system, then he can add/remove topics and sub topics, add/delete contents for those topics and he can also add/delete the exam paper.

In the same way students also need to register first for authentication. After successful login students can access the system. Here the courseware is divided into graduate and under graduate programs. Based on their requirement students can login into it. Here the students can download the course materials, write the exams and they can view their results immediately.

Here the key characteristic of developed SWAS courses is active utilization of highly effective learning-by-doing paradigm of education with strong emphasis on technical skills and hands-on experience of students. And it is aimed at concepts, models, methods, technologies, and tools used to design, develop, test, implement, and maintain highly secure software and Web systems.

#### 5. REFERENCES

- "2012 Cost of Cyber Crime Study: United States," report by Ponemon Institute, <http://www.ponemon.org/local/upload/file/2012USCostofCyber-Crime-Study-FINAL6%20.pdf>
- "2010-2011 CSI Computer Crime and Security Survey," by the CSI Computer Security Institute, <http://goCSI.com>
- Undergraduate concentration in Software, Web, and Computer Security at Bradley University, <http://www.bradley.edu/academic/departments/csis/programs/undergrad/>
- Graduate concentration in Software, Web, and Computer Security at Bradley University, <http://www.bradley.edu/academic/departments/csis/programs/concentrations/>
- Stuttard, D., Pinto, M. The Web Application Hacker's Handbook: Discovering and Exploiting Security Flaws, 2nd Edition, Wiley, 2011.

6. Zalewski, M. *The Tangled Web: A Guide to Securing Modern Web Applications*, No Starch Press, 2011.
7. Sikorski, M., Honig, A. *Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software*, No Starch Press, 2012.
8. McGraw, G. *Software Security: Building Security In*, Addison-Wesley Professional, 2006.
9. Stallings\* W., Brown, L. *Computer Security: Principles and Practice*, 2<sup>nd</sup> Edition, Prentice Hall, 2011.
10. Skoudis, E., Liston, T. *Counter Hack Reloaded: A Step-by-Step Guide to Computer Attacks and Effective Defenses*, Prentice Hall, 2006
11. Andrews, M., Whittaker, J. *How to Break Web Software: Functional and Security Testing of Web Applications and Web Services*, Addison-Wesley Professional, 2006.
12. Sherri Kruger. *Why You Should Learn by Doing*, <http://www.dumblittleman.com/2010/10/why-you-should-learn-by-doing.html>
13. <http://www.nmrc.org/pub/faq/hackfaq/hackfaq-08.html>
14. <http://computerinformationsite.com/2011/12/08/different-types-of-computer-attacks/>  
<http://airccse.org/journal/iju/papers/3312iju02.pdf>