

Automation of Industrial Internship Program

by

Seyed Mohammad Mirtaheeri

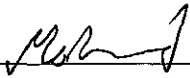
Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Engineering (Hons)
(Information Communication Technology Bachelor of Engineering)

JULY 2007

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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



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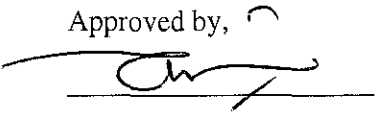
CERTIFICATION OF APPROVAL

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Seyed Mohammad Mirtaheri

A project dissertation submitted to the
Information Communication Technology Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirement for the
BACHELOR OF TECHNOLOGY (Hons)
(INFORMATION COMMUNICATION TECHNOLOGY)

Approved by, 

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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

July 2006

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CHAPTER 1

INTRODUCTION

1.1. BACKGROUND

Student Industrial Internship Program(SIIP) has been introduced by Universiti Teknologi Petronas(UTP) in order to expose students to working culture and also mingling theoretical studies in UTP with working experiences. Besides, objective of SIIP is to produce well-rounded graduates who possess technical competence, lifetime learning capacity, critical thinking, communication and behavioral skills, business acumen, practical attitude and solution synthesis ability. There are five parties involved directly in the SIIP who are: Student Industrial Internship Unit(SIIU), UTP lecturers, host companies, plant supervisors (PS) and students.

1.2. PROBLME STATEMENT

This whole system of Industrial Internship which is manual at the moment brings myriad of workload for stated group of people. These problems can be categorized according to the occasions they happen:

1.2.1. Before Industrial Internship

In this time students must submit their resume and application letter to SIIU, choose companies they intend to apply for, and trace their request status. Since resumes and application letters don't have specific format, and number of students undergoing this program every semester is huge, distinction among students according to their liabilities is impossible. Furthermore it happens occasionally that students with outstanding academic results lose application opportunities due to lack of communications with SIIU. Finally checking status of application is time consuming process due to unavailability of a centralized system.

1.2.2. During Industrial Internship

During this period students must fill up weekly report and brief report to be signed by their supervisor. In addition they have to submit related forms to UTP which later are to be used for scheduling student final presentation. Firstly, due to current manual system, students tend not to fill up their reports on weekly basis but rather postpone it toward the end of training period. Secondly, forms which have to be sent to SIIU occasionally get lost which will cost lose of student contact number and further difficulties on scheduling of student's final presentation.

1.2.3. After Industrial Internship

Students and plant supervisors have to submit reports and evaluation forms to UTP supervisor. Supervisors in turn have to mark and submit them to SIIU. It is common that forms which are to be submitted to UTP supervisor through PS, get lost in post or arrive late to UTP. This will further defer marking process.

1.3. OBJECTIVES

The purpose of this research is automating Student Industrial Internship Program business flow by developing distributed website. The end product is to be deployed over Internet and accessible to all five parties mentioned above. As such, this project is expected to cover following objectives:

1. To study Student Industrial Internship Program business process.

As mentioned above main purpose of this project is automation so it is of importance to have wide view about SIIP business flow. As the word automation implies, business process will not be affected by launching this project, but rather this project is a mean to computerize existing system. Thus the management would not withdraw its support from the project as it makes SIIP more efficient, without touching business flow.

2. To conduct research on defacto automation techniques.

By conducting research on developed systems, systems is fortified in term of

performance, reliability and security. Unfortunately past systems developed, failed to consider this aspect of system development and so security pitfalls were not covered on over 60 percent of web pages.

3. To conduct research on distributed systems.

It is of vitality to make system distributed in near future for the sake of huge number of users interacting with it. Goal of system is an online website, available for students in industrial internship scattered all around the globe, students in UTP who intend to go for industrial internship by coming semester, lecturers, SIIU staff and plant supervisors. Thus single centralized system will be a bottleneck and further distribution is inevitable.

4. To develop intended automated system for SIIU.

Finally by conducting mentioned studies, initial centralized system is to be developed by end of Jun 2007 and distributed system is to be developed and lunched by end of year 2007.

1.4. SCOPE OF STUDY

In order to find out business flow of SHIP and expectation from website, continuous interview sessions with Mr.Affendi, senior executive of SIIU, is conducted every 4 weeks . During these sessions Mr.Affendi express his point of view about developed system and give orientation for further improvements.

Structure of system is similar to Drupal Content Management System which is one of the biggest open source LAMP content management systems deployed over net. This structure is highly centralized while it is maintainable, flexible, expendable and compatible with future distributions.

System distribution which is secondary goal of the system will focus on duplication of web portal and transparent user migration while providing consistence backend database.

CHAPTER 2

LITERATURE REVIEW AND THEORY

Under supervision of Mrs Aliza Binti Sarlan, two systems developed to automate SIIP. Both systems, which have been developed by Judy Nadia Jolonius and Norfadilah Binti Samsudin were compatible to LAMP (Linux, Apache, MySQL and PHP) technology. While first system succeeded to meet all its requirements, it failed to provide all functionalities required by five mentioned parties. On the other hand second project though added some extra functionalities to first version it was not integrable with first system.

Though system analyzing and design phrases carefully taken care of in these two systems, unfortunately there were inherent shortcomings in implementation phrase. These shortcomings raised from the fact that programming methodology used to develop system, not only didn't comply to object oriented programming rules, but also it didn't comply to structured programming guidelines. One may claim that PHP website developing is of necessity neither structured oriented nor object oriented, as general point of view about PHP philosophy which is: Developing fast and dirty websites.

But according to Converse (2002):

Your answer to that question(How OOP Is PHP ?) probably depends on your particular litmus test for object-orientendness. Although PHP offers no support for multiple inheritance and no notion of interface inheritance, it do allows a class definition to inherit from another class using the extends clause. Both member variables and member functions are inherited. From Zend Engine 2 parser onward, PHP support not only constructors but also destructors. This, is the case about Encapsulation and access control as well.(p. 529)

Without any doubt PHP programming language is striving toward object oriented programming schemes and in case of database interaction it is already object oriented. According to Whitney (2007):

With version 4, PHP added "Unified ODBC," which sought to create consistent database interfaces so that the back-end database could be changed when needed without significant code rewrites. PHP 5 takes that further with PHP Data Objects (PDO), a beta of which was released in February 2005. PDO allows for a consistent, object-oriented syntax for use with multiple database drivers, such as IBM Cloudscape, IBM DB2 Universal Database, Firebird/Interbase, Microsoft SQL Server, MySQL, ODBC, Oracle, PostgreSQL, and SQLite (p. 1).

In addition to source code structure in these two systems, there is a big security hole. Apart from log in page only few more pages check user privilege before executing intended functionality. So intruder can simply log in using low privilege account such as student, fake administration privilege and exploit all critical website functionalities.

These shortcomings resulted in reimplementing the system from scratch. Nevertheless good deal of informations gained from first three phrases, namely requirement gathering, analyzing and system design.

2.1. AUTOMATION AND COMPUTERIZATION

Throughout modern history, mechanization and automation have contributed to, or driven, expansion by reducing the costs of food and material good, stimulating the market for them, providing paychecks for workers to buy those goods, and creating capital to be invested in production of more and still cheaper goods, further stimulating the market.

The first step in automation of business flow is to find out information flow. Correct operator actions, technician activities, and business decisions depend on information from the plant floor. It is therefor important to build an information architecture that captures data from the field and disseminated it throughout the enterprise. The data is distilled as it percolates through the automation, execution, and business levels. (Fazlollahi, 2005, P.2)

A modern plant must have an open network infrastructure that reaches form the lowest levels all the way up to the execution and business levels, permitting hardware from

different manufacturers to communicate. Similarly, a plant must have an open software infrastructure starting from the automation system all the way up to the ERP and supply chain applications. Therefore a modern plant requires the use of standards-based networking, with a standard application layer, and then software interfaces on top of that.(Fazlollahi, 2005, P.3)

Ever since organizations have owned more than one data source, they've been moving and copying data from one place to another to capitalize on the "information superhighway" known as the Web. Now, chief information officers (CIOs) everywhere say they spend too much time and money integrating data from disparate sources such as databases, Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Business Intelligence (BI) systems, legacy and mainframe systems ... and on and on.(Forsyth, 2007)

Major advantage of software is that lots of information can be processed and displayed in a comprehensible way. Large screens and well-organized displays are required to show large amounts of information brought in by modern fieldbus networks without causing clutter. Online data can be shown as dynamic displays can mimic traditional lars, switches, and controller faceplate, etc. Data and events are automatically logged and displayed as trend plots, summarized in reports, or analyzed. Higher-level control functions such as batch management and multi variable optimization can be done in software. Without powerful software, it is impossible to benefit fully from intelligence in fieldbus devices, for example. For any system larger than a handful of loops, software is a better operator interface than panel instruments.(Fazlollahi, 2005, P.3)

Electronic record-keeping (i.e., database storage instead of recorder charts and log sheets) is another important aspect of software. Electronic record-keeping requires database engines with open interfaces that can accept information from different sources and make it available to other applications for analysis.(Fazlollahi, 2005, P.3)

2.2. DISTRIBUTED COMPUTING AND INTERNETWORKING

In essence, distributed system is a collection of independent computers that appears to its users as a single coherent system. In such a system, differences between the various computers and the ways in which they communicate are hidden from users. Users and applications can interact with distributed system in a consistent and uniform way, regardless of where and when interaction takes place. It should also be relatively easy to expand or scale. (Tanenbaum, 2002, P.2)

There is growing interest in distribution automation, the implementation of automation in the distribution system. In this field, the primary problem, limited data rate on the communications channel, is readily solved by using technologies like fiber optics. It must be assumed that it is necessary to communicate with all parts of the network. The data acquisition and control needs of the system mean that it will be necessary to tap into the communications network at a large number of locations. It is also a requirement that communications be possible to all locations even if the configuration of the network changes, if for example because of failure of one or more lines or nodes.(Kikham, 1991, P.1)

In order to organize distributed system into hierarchy of processes which is accessible over network, Client server architecture is used. While concept of client is straight forward, server concept needs more elaboration. A server is a process implementing a specific service on behalf of a collection of clients. In essence each server is organized in the same way: It waits for incoming request from a client and subsequently ensures that the request is taken care of, after which it waits for the next incoming request.(Tanenbaum, 2002, P.149)

Another issue is where clients contact a server, in all cases, clients send requests to an endpoint, also called a port, at the machine where the server is running. Each server listens to a specific endpoint, for example servers handle Internet FTP requests always listed to TCP port 21. likewise, an HTTP server for the World Wide Web will always listen to TCP port 80. These endpoints have been assigned by the Internet Assigned Numbers Authority (IANA) and are documented in (Reynolds and Postel, 1994).

Open source software has perhaps shaped most the markets of web server software , which has become a new market for software products between personal computers and corporate mainframes. The software combination known with acronym LAMP(Linux, Apache, MySQL and PHP/Perl) has been the first choice for many system integrators during the recent years. IBM and Oracle for example sell Linux and Apache-based server solutions; of course, Oracle may run their own database on top of it and also has its own database products.(Mikko, 2005, P.17)

As mentioned above, dominant Web server on UNIX platforms is Apache server. This server consist of number if modules that are controlled by a single core module. The core module accepts incoming HTTP requests, which it subsequently passes to the other modules in a pipelined fashion. For each incoming request, the core module allocates a request record with fields for the document reference contained in the HTTP request, the associated HTTP request headers, HTTP response header, and so on. Each module operates on the record by reading and modifying fields as appropriate. Finally, when all modules have done their share in processing the request, the last one returns the requested document to the client. (Tanenbaum, 2002, P.664)

2.3. CONTENT MANAGEMENT SYSTEMS

A content management system (CMS) is critical to the success of almost every website and intranet, and yet many organisations are not familiar with this technology. A content management system (CMS) supports the creation, management, distribution, publishing, and discovery of corporate information. It covers the complete lifecycle of the pages on web site, from providing simple tools to create the content, through to publishing, and finally to archiving. It also provides the ability to manage the structure of the site, the appearance of the published pages, and the navigation provided to the users. (Robertson, 2003, P.1)

The content of the site is usually stored in a database when using a CMS, allowing for a robust data structure, and quick and easy backup or data restoration without having to update and maintain hundreds of files or more. Understanding of database design is required when setting up a CMS, along with knowledge of server side scripting languages,

and other languages and code libraries. This is why even though many companies promise the CMS for free with purchase of hosting, it is still a good idea to hire a professional design company to securely set up and maintain the database and site. Sites that are powered by CMS's allow the user multiple options of how the content is published. When adding an article, you can choose to publish it or not, or even choose a publication date. This allows you to add content with time sensitive publication, or to work on the article until satisfied and then choose to publish it, and when published the general public will be able to view the article.(Rutledge, 2007, P.1)

CMS architecture can be Centralized or Decentralized. Centralised authoring involves setting up a dedicated team to create new content, and manage the publishing process. There is close liaison between the team and the business groups that 'own' the content. In this way, the content team acts as a 'service group' for the rest of the organisation. All information that is published by the team is reviewed and signed off by the business, to ensure accuracy and relevance.(Rutledge, 2007, P.2). Decentralised authoring is useful when content for the intranet or corporate website is 'owned' by a number of different business groups within the organisation. It therefore makes sense to give them the direct responsibility for updating their information. In decentralised approach, the authors are scattered throughout different departments, all feeding information into the content management system.(Rutledge, 2007, P.1)

The main selling factor of a CMS is that once it is setup, the web designer is hardly required for further updates, as the site owner can do the updates, or hire an in house person to do so. It is recommended to keep the web design staff around for if the site requires updates that your staff can't handle, or if the site requires fixing. The initial cost of site design and CMS setup is close to, if not less, than older ways of site design that required a web-design company to update the site. With a CMS one can update his or her site in house, which over the long run of owning a site will save more money. A CMS is a cost effective solution, and smart way of owning and maintaining a website that any business should research further.(Rutledge, 2007, P.3)

CHAPTER 3

METHODOLOGY

Since SIIP is huge and rather complicated, consist of large number of users involve which is furthermore sophisticated with the change of Industrial Internship Unit Senior Executive in the middle of project, the requirements for the project is obscure and volatile. Hence in order to develop this project prototyping base methodology is used.

Prototyping base methodology performs the analysis, design and implementation phases concurrently, and all three phases are performed repeatedly in a cycle until the system is completed. In this methodology, the basics of analysis and design are performed and work immediately begins on a system prototype, a 'quick-and-dirty' program that provides a minimal amount of features. The first prototype is usually the first part of the system that the user will use. This is shown to the users and project sponsor who provide comments, which are used to Re-Analysis , Re-Design and Re-Implement a second prototype that provides few more features. This process continues in a cycle until the analysts, users and sponsor agree that the prototype provides enough functionality to be installed and used in the organization. After the prototype is installed, refinement occurs until it is accepted as the new system. (Dennis, 2005, P.10)

3.1. TOOLS REQUIRED

3.1.1. Software Requirement

Server Side Application:

- Apache Tomcat
- MySQL 5
- PHP 5
- Unix base OS (Unix, Linux, Fedora etc.)

Client Side Application:

- Web-Browser support: Internet Explorer 5.0 and above, Mozilla core including Fire Fox and Netscape.

3.1.2. Hardware Requirement

Client Side:

- Pentium III
- 64 MB of RAM
- 30 MB hard-disk

Server Side:

- Dual Core Processor 1.66 GHz or Centrino Processor 3.0 Ghz
- 1 GB of RAM
- 60 GB of hard-disk
-

3.2. GANTTCHART

Next page figure shows Gantchart for FYP past II.

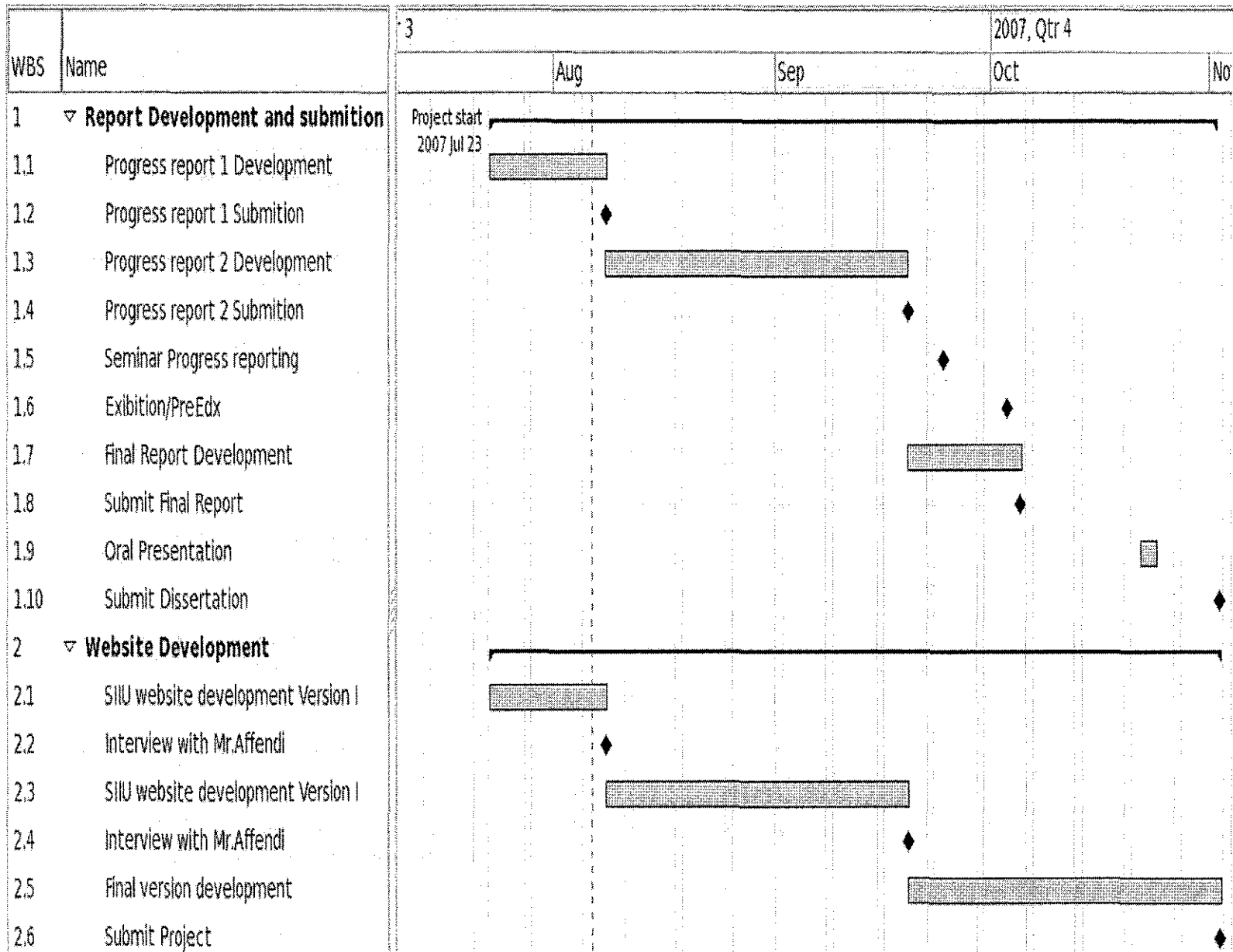


Figure 1. FYP 2 ganttchart

CHAPTER 4

RESULTS AND DISCUSSION

As stated above, as-is system suffer from manual system which make Industrial Internship program inefficient, troublesome and slow in marking. Purpose of this research, is to develop an online, computerized system for the UTP Students Industrial Internship Program. The system is expected to serve the following objectives:

- To ease assignment of company for students before industrial internship. All activities under this rubric will be implemented by the website. This includes: Management of students profile, companies profile and the relationship between these two entity in term of student requests and their status.
- To closely monitor the students' performance. Every single week, the students' reports will be evaluated by the Plant Supervisor and later submitted to the SIIU, online. This will ensure that the students are monitored closely in a timely manner.
- To ease the task of scheduling the visits and assigning UTP Supervisors. This product should assist in assigning the students to the respective lecturers, based on their program and host company location. Besides, lecturers can view list of students under their supervision together with the name of host companies.
- To automatically calculate the final mark of students. In addition to preventing miscalculations, this type of task automation reduce staff workloads.

For the mean time, there are several UTP systems that have been migrated to web-based or online system. The major reason for the migrations is simply because the web-based or automated system provides far more efficiency in processing any task domain especially for a system that involves lot of data collections and retrievals. This characteristic elegantly suits the SIIP System.

4.1. SYSTEM'S FUNCTIONAL REQUIREMENTS

From an interview session (refer appendices) with Mr. Noor Affendy, the senior executive of IIU and also referring to previous students who worked on this project, system functional requirements listed below:

4.1.1. Monitoring

The new system should be able to closely monitor students' performance and activities during their internship period. Therefore, the monitoring activities of the new system are done continuously. This is beneficial in a way that it can enhance students' performance from time to time through:

- Confirmation of students' placements by students and Plant Supervisors.
- Online submission of training schedule.
- Online submission of weekly reports.
- Assessment of weekly reports by Plant Supervisor.
- Viewing of students' weekly reports and marks by lecturer and SIIU.
- Assessment of students' performance.
- Assessment of students' final presentations.
- Assessment of students' final report marks.

4.1.2. Scheduling

Scheduling/Timing is important in assigning visits by UTP lecturers to host companies. This is because, each of the party involved including the Plant Supervisor, lecturer, and students themselves, have their own business and personal schedules. Therefore, there should be a systematic way to schedule the visits and also to inform the scheduled visits to the people involved. This can be done through :

- Viewing of all students' placements by SIIU and the Internship Program Coordinator (IPC).
- Assigning students to respective lecturer by the IPC.
- Determining the date and time of visits by lecturers to host companies, which will also be attended by students and their respective Plant Supervisor.

4.1.3. Grading

System should manages the overall students' marks for grading purposes. Those marks which have been keyed-in, either by the lecturer or Plant Supervisor into the system, will be total up in order to obtain a particular student's grade for the internship. After the internship ends, students can obtain their final result through viewing their results from the system.

4.1.4. Reporting

This requirement, which is directly requested by Mr.Affendi, is useful for analyzing purposes which will ease the administrator's tasks. It will appear as "Statistics" header under administration section and let the administrator to view students profile, resumes, applications status. In addition it let administration to view host companies offers status.

4.2. SYSTEM USERS

As for the Industrial Internship Web Portal, five main users have been identified. Those users are:

1. *SIIU*

SIIU or the system's administrator is the one who gains full control of the system. SIIU plays the most important role in maintaining the correct process flow of the system. The reason is SIIU is major stakeholder of the project and it is its manual system which is about to be replaced by this project.

2. *Student*

Student is the main user of the system since the system is purposely developed for their internship program or SIIP. Therefore, there are many functionalities of the system those are to be performed by students before Industrial Internship and during Industrial Internship.

3. *Plant Supervisor*

Plant Supervisor acts as students' mentor at their placements and is close to students

during that period. Plant Supervisor is highly responsible in determining the success of the internship program. His main functionality in respect to this system is Grading and helping to schedule UTP Supervisor visit.

4. *Lecturer*

Lecturer acts as UTP representative to co-supervise students during their internship together with the Plant Supervisor. Lecturer pays visits to host companies to make sure students are on right track and in case of any unsatisfactory try to settle the problem or change student placement.

5. *Authorized Companies*

Authorized Companies are companies which offer students Industrial Internship placement. This companies post their criteria in system so students can find appropriate placement. In addition these companies must have privilege to browse students resumes in order to give them placement offer.

4.3. ARCHITECTURE DESIGN

Based on system specifications over all system architecture proposed using the MVC model, which is conceived as a general solution to the problem of users controlling a large and complex data set (Reenskaug, 2003, P.1).

This model first time published in “*Design Patterns, Elements of Reusable Object-Oriented Software*” by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides [also known as the Gang of Four (GOF)] has been a de facto reference for any Object-Oriented software developer (Mariano, 2002, P.1)

This architectre also uses open standards based on technologies like PHP and RDBMS.

4.3.1. Architecture Diagrams

1. Access Control Service (ACS) :

ACS is responsible for implementing security checks to ensure no unauthorized users access information. Fine grained permissions has to be set for different groups of users.

2. Document/Page Management Service (D/PMS) :

D/PMS is responsible for maintaining the structure (folders) of the content and fetching requested content on demand. D/PMS works with the Content Cache(CCS) and Version Management Service(VMS) to server requested content.

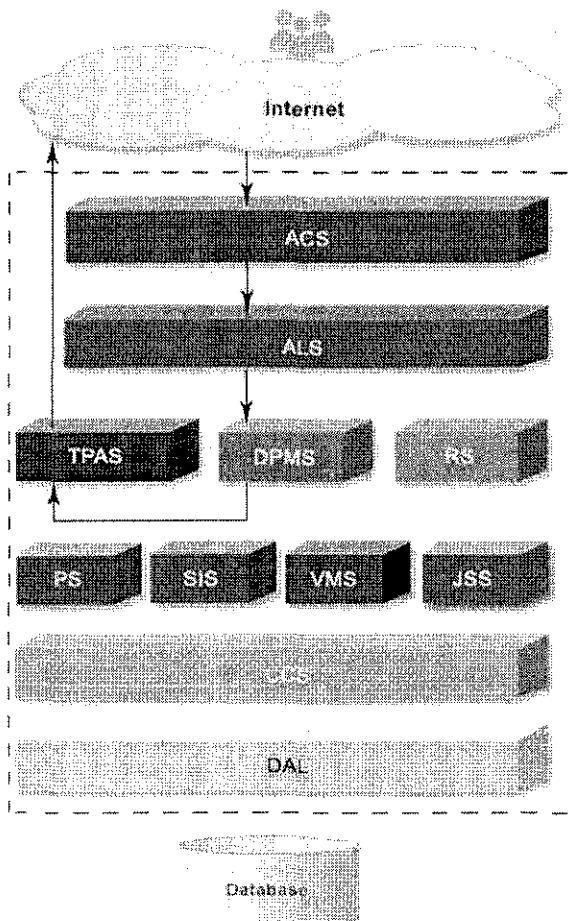


Figure 2: Industrial Internship Web Portal Architecture Diagram.

3. Version Management Service (VMS)

VMS is responsible for managing multiple versions of content (documents) in the system. Documents can have many versions to support content roll-backs and multiple locales.

4. Content Caching Service (CCS)

Frequently requested content is cached by the CCS to reduce the server load and increase application response times. In addition to objects, part (regions) of web pages (which have a high assembly cost) too can be cached in the CCS. CCS is responsible for expiration of cached content when changes to content or newer versions are detected.

5. Job Scheduling Service (JSS)

JSS handles execution of pre-defined one-time or periodic tasks in the background.

6. Access Logging Service (ALS)

ALS logs each requested page/document/file. Along with the name of the requested document, ALS also logs additional demographic information like:

- Country of origin
- Date and time of request
- Referring URL
- Username (if available)
- User's ISP's hostname and IP address
- Browser

ALS along with Reporting Service (RS) provides the ability to perform detailed hit analysis.

7. Reporting Service (RS)

Various reports for analysis of user activity are provided by the Reporting Service. Reports can be exported to multiple formats like PDF, Microsoft Excel, RTF, CSV and

XML. Data exported as XML or CSV can then be imported into other systems for further use if required.

8. Personalization Service (PS) :

PS works in conjunction with the Page Assembly Service to fetch data personal to the user making the request.

9. Search/Indexing Service (SIS) :

SIS is responsible for indexing the website content and answering search queries. Intelligent cross linking of content based on metadata is also handled by SIS.

10. Templating and Page Assembly Service (T/PAS) :

Page assembly involves collating various content fragments that make up the page via content channels.

11. Database Abstraction Layer (DAL) :

DAL separates the business logic from the underlying database. This makes it possible to port Activesite onto many other databases.

12. Relational Database :

All content is stored in a relational database. Database access is segregated into a different layer to facilitate porting the application onto more RDBMS servers.

Following diagram depict system proposed classes according to system specifications:

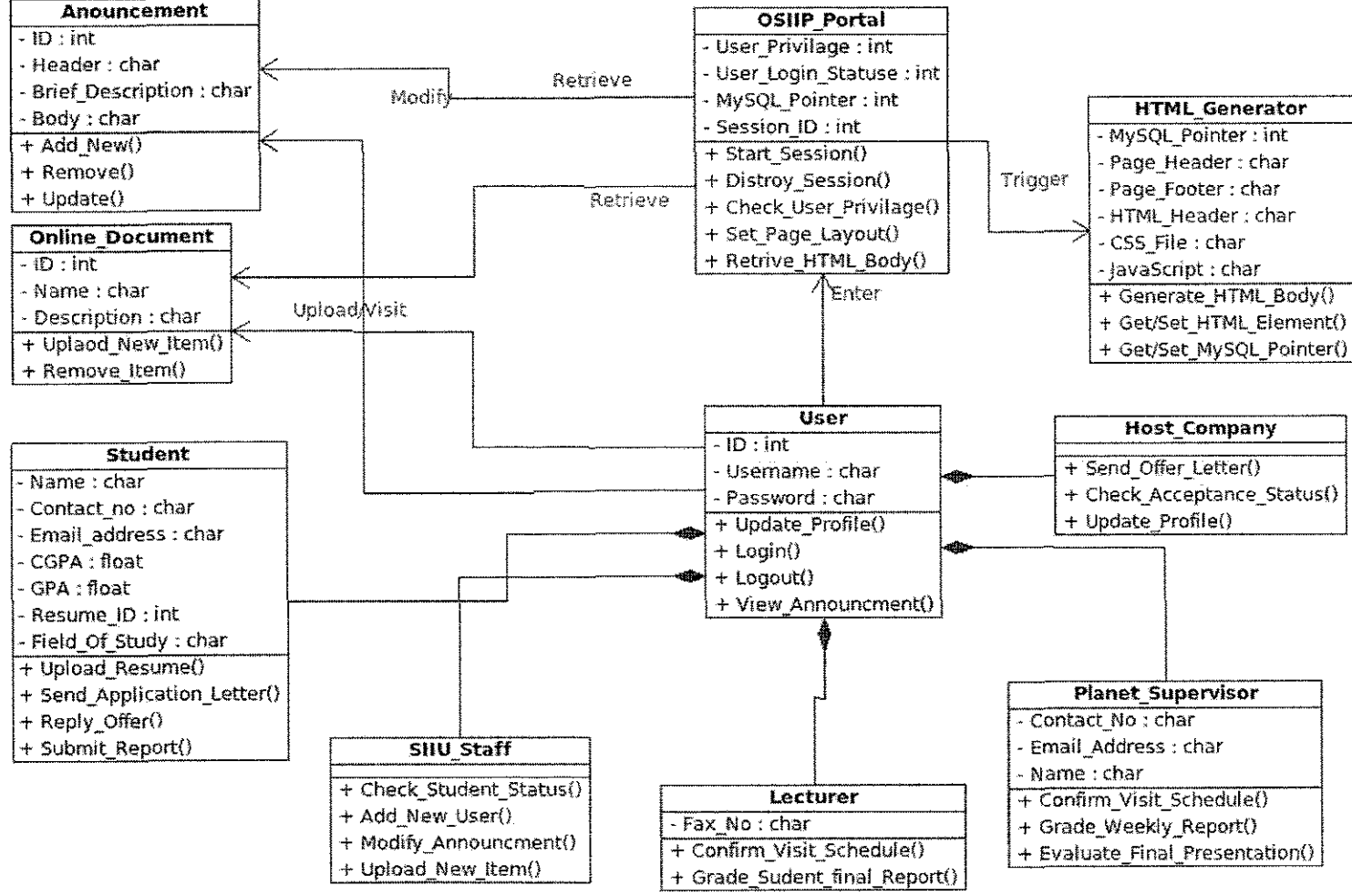


Figure 3: Industrial Internship Web Portal Class Diagram.

4.4. SYSTEM SNAPSHOT

Following figures depicts system snapshots. First two figure shows system main page which is open to all users including guess. Materials in entrance page don't need any privilege and they are open to all users. Figure 3 to 14, shows Administration page. In this page which is mostly intended to SIIU staff, user can update announcements, and new users off any type and privilege, view statistics related to students and lecturer's. Rest of figures, that is figure 15 to 18, shows first page appeared for other users. Functionalities on these parts are under development at the time of this writing.

4.4.1. System Main Page

Following twp snapshots depict system main page. Opening these pages does not need any privilege and their functionalities consists of login, view archive, view course materials and view SIIU staff profiles.

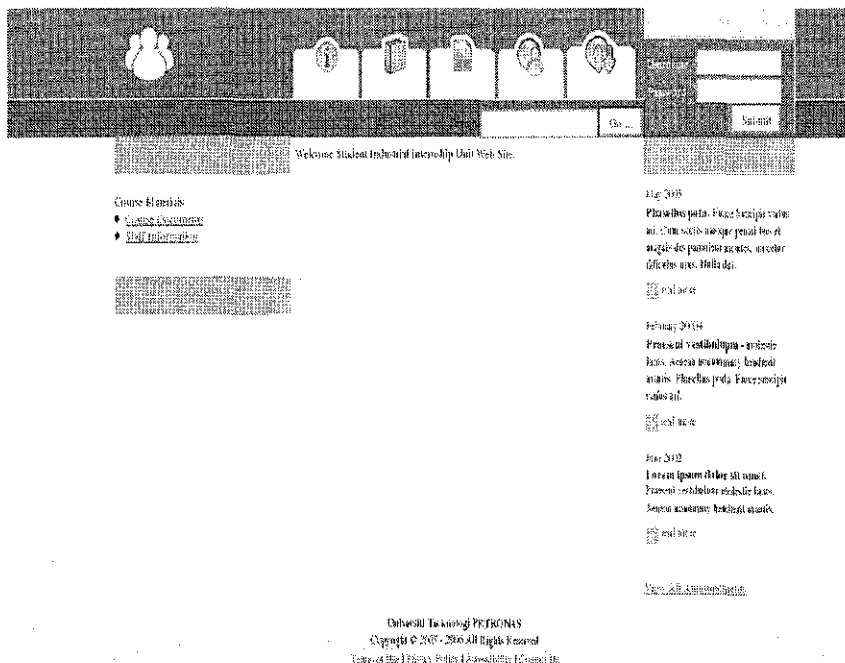


Figure 4: Industrial Internship Web Portal Entrance Page

VIEW ARCHIVE

Course Materials

- Home
- About
- Contact Us

MAY 2015	<p>FUNCE NUSCITTE VARDIBEL, CUBINGODIS NUY-QUE FFRAH PUS FFMI-SSUS IUS PARTURIENT AGNITES, HANXETUR MIPQUE US ANX, NRE LA DIT.</p> <p>SEE READ MORE</p>	<p>MAY 2015</p> <p>Phasiditipita. Fere fev que tatis ut. Etiam conis ut que post hanc tempus parturient mares. exere dicitis ut, hanc et</p> <p>SEE READ MORE</p>
SEPTEMBER 2014	<p>MELESTIE I ACUS, ABRE ANX ARIBIT PERANDEIT FABRIS, PRESSELOS PONTA, FUNCE SINGIT VARIUS MI.</p> <p>SEE READ MORE</p>	<p>SEPTEMBER 2014</p> <p>Phasiditipita. Fere fev que tatis ut. Etiam conis ut que post hanc tempus parturient mares. exere dicitis ut, hanc et</p> <p>SEE READ MORE</p>
JUNE 2012	<p>FRASITIT VESTITUR ABIDOLESTIE I ACUS, SEPNE ANX ARIBIT HE MARCHIT MARCHIS.</p> <p>SEE READ MORE</p>	<p>JUNE 2012</p> <p>Phasiditipita. Fere fev que tatis ut. Etiam conis ut que post hanc tempus parturient mares. exere dicitis ut, hanc et</p> <p>SEE READ MORE</p>

[View All Announcements](#)

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Figure 5: Industrial Internship Web Portal -> View All Announcements

4.4.2 Administrator Page

Following snapshots depict administration page. These pages consist of updating announcement archive, uploading items, adding users, searching students and lecturers and companies, updating SIU staff profile and finally generating report about status of students.

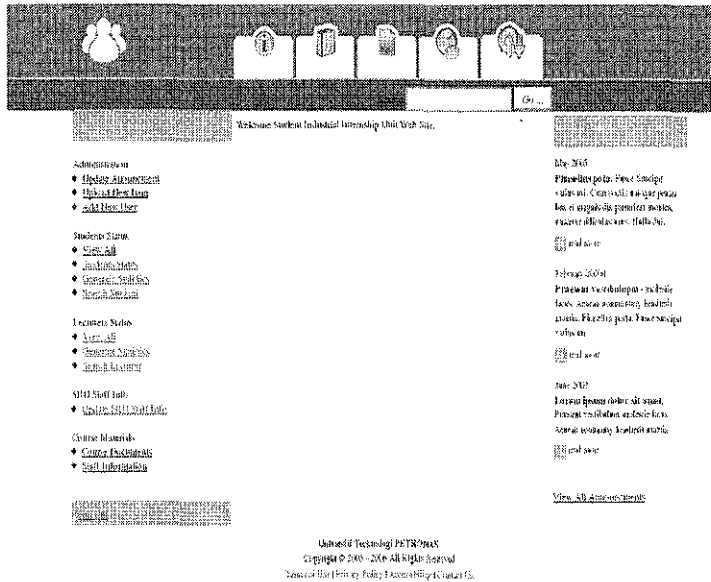


Figure 6: Industrial Internship Web Portal -> Administrator Page

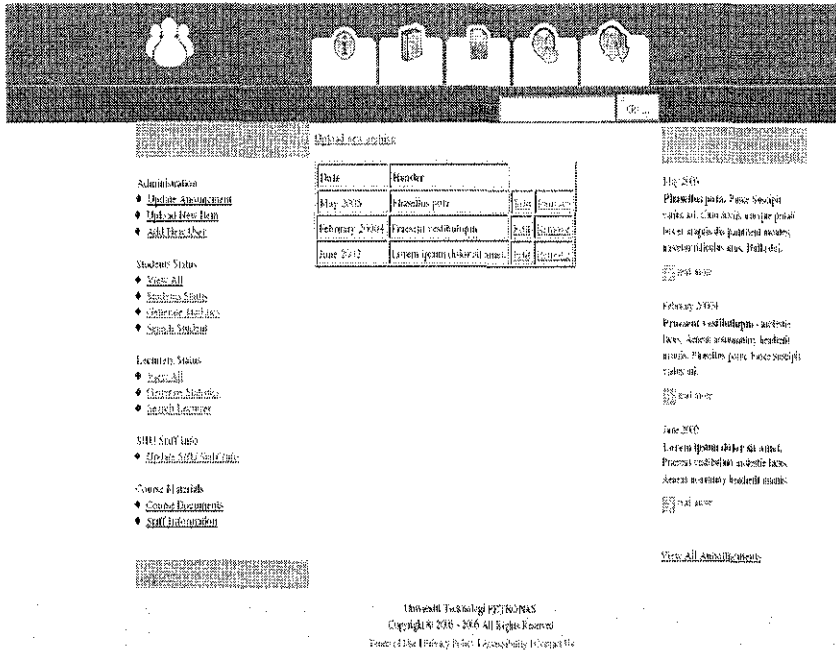


Figure 7 : Industrial Internship Web Portal -> Administrator Page -> Update Announcement

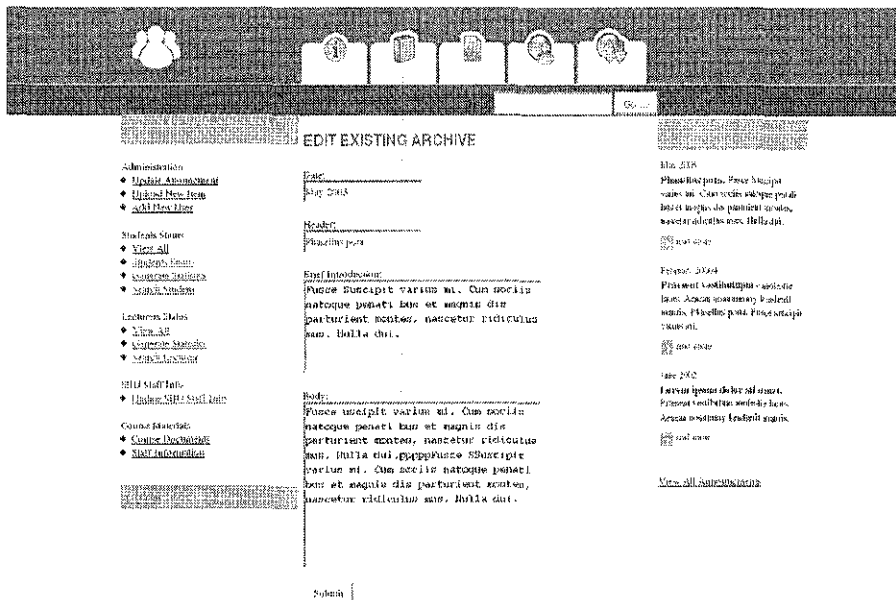


Figure 8 : Industrial Internship Web Portal -> Administrator Page -> Update Announcement -> Edit

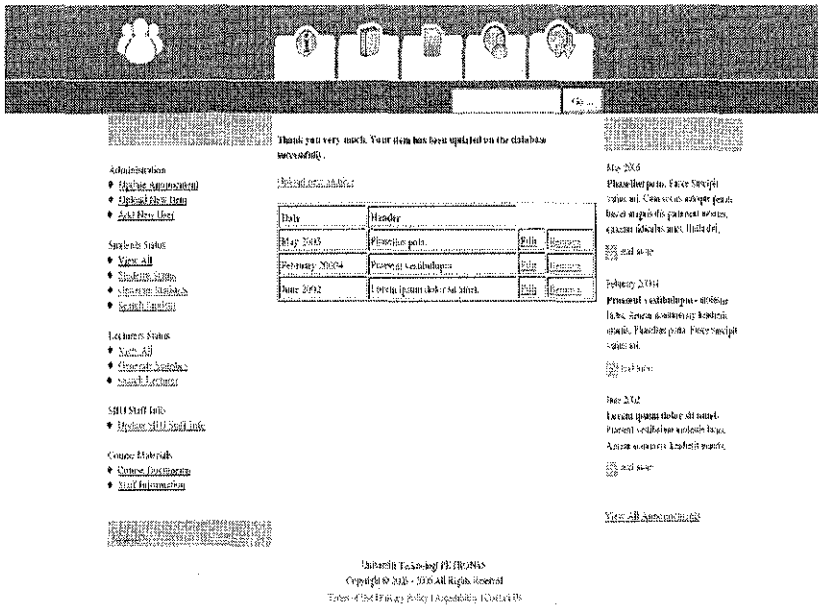


Figure 9 : Industrial Internship Web Portal -> Administrator Page -> Update Announcement -> Edit -> Submit

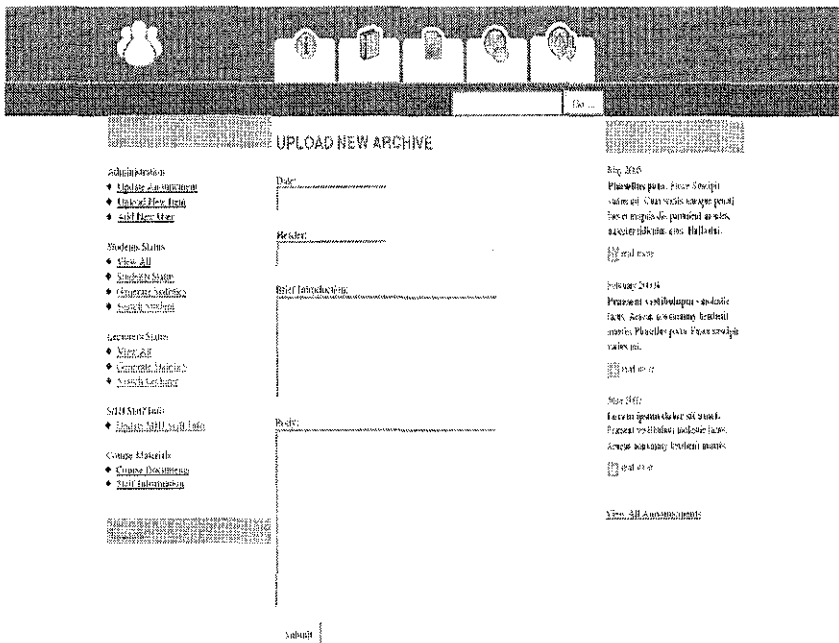


Figure 10: Industrial Internship Web Portal -> Administrator Page -> Update Announcement -> Upload new Archive

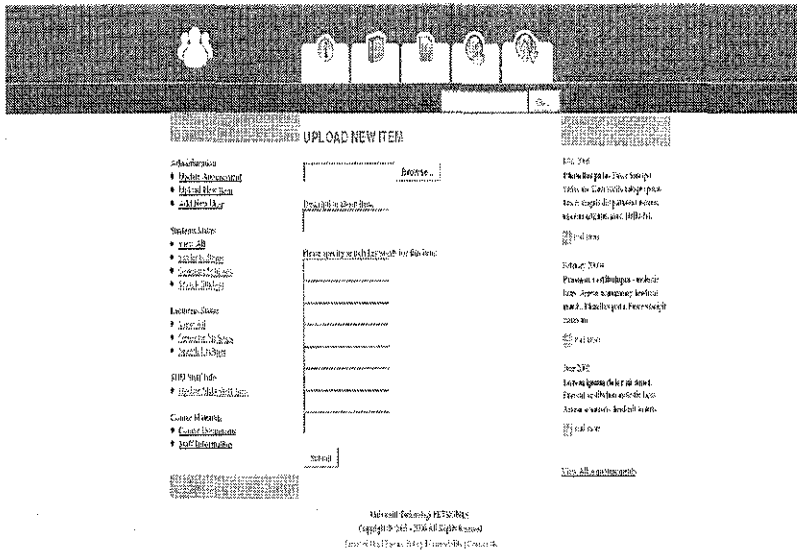


Figure 11 : Industrial Internship Web Portal -> Administrator Page -> Upload New Item

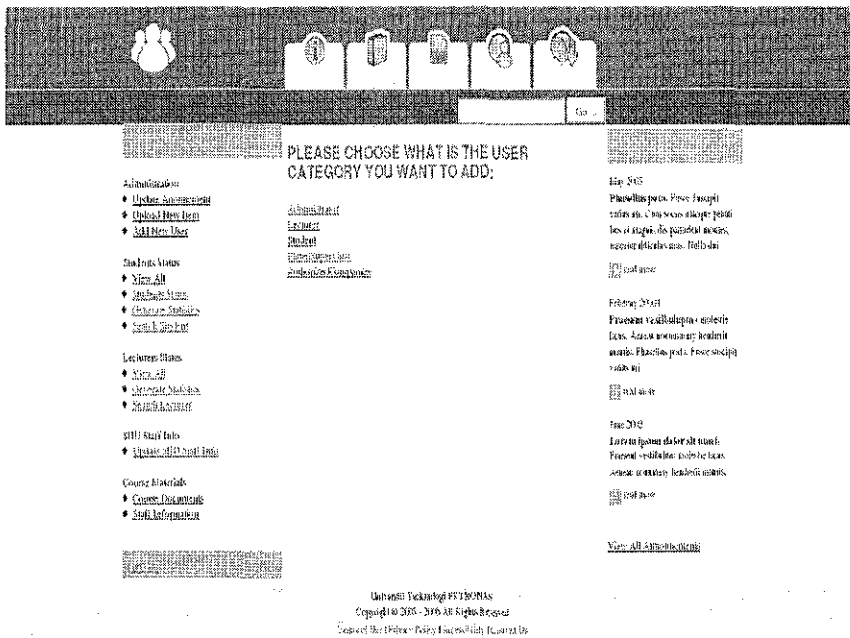


Figure 12: Industrial Internship Web Portal -> Administrator Page -> Add new User

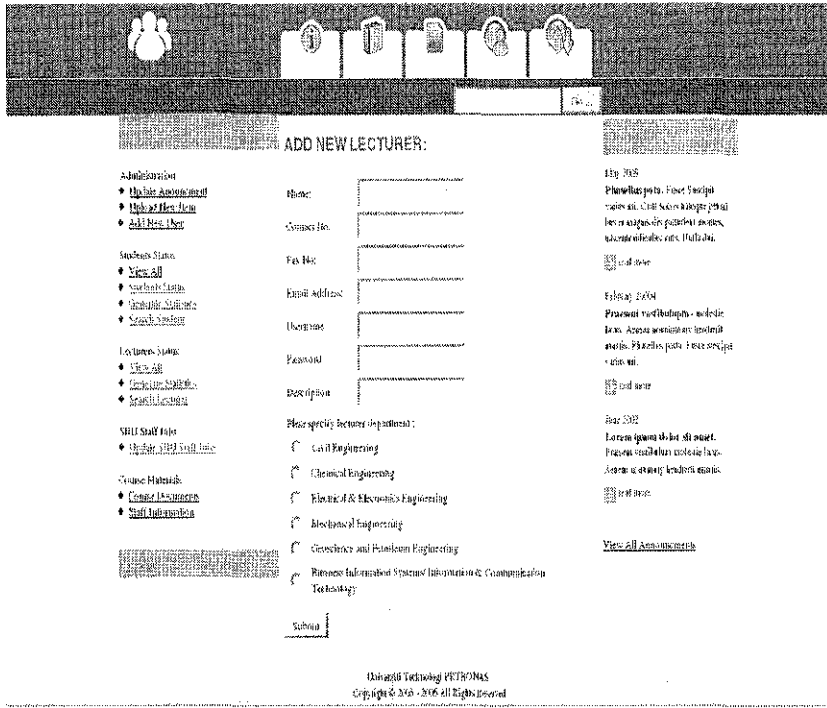


Figure 13 : Industrial Internship Web Portal -> Administrator Page -> Add new User -> Administrator

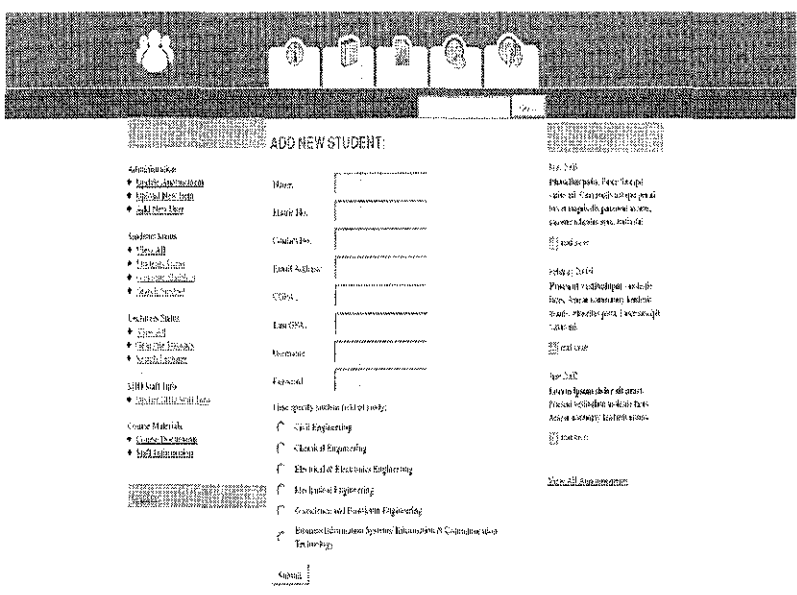


Figure 14 : Industrial Internship Web Portal -> Administrator Page -> Add new User -> Lecturer

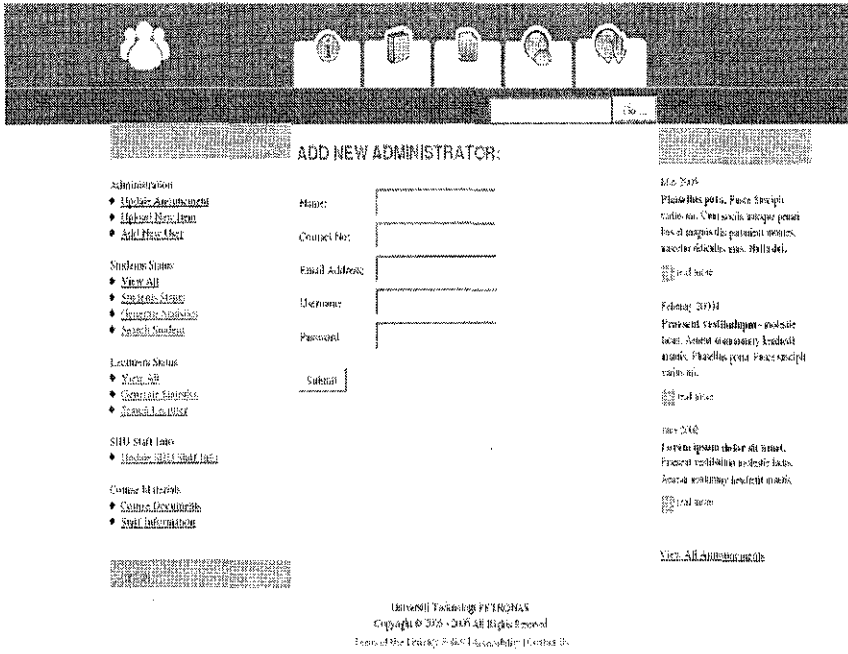


Figure 15: Industrial Internship Web Portal -> Administrator Page -> Add new User -> Student

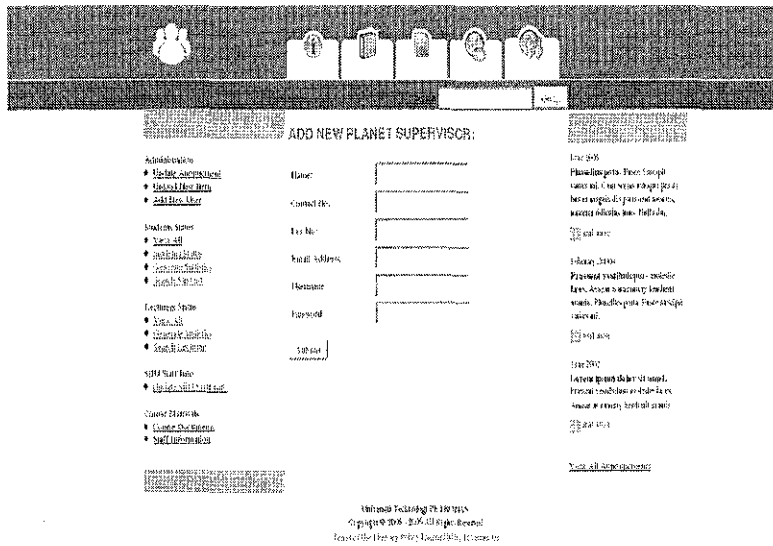


Figure 16: Industrial Internship Web Portal -> Administrator Page -> Add new User -> plant Supervisor

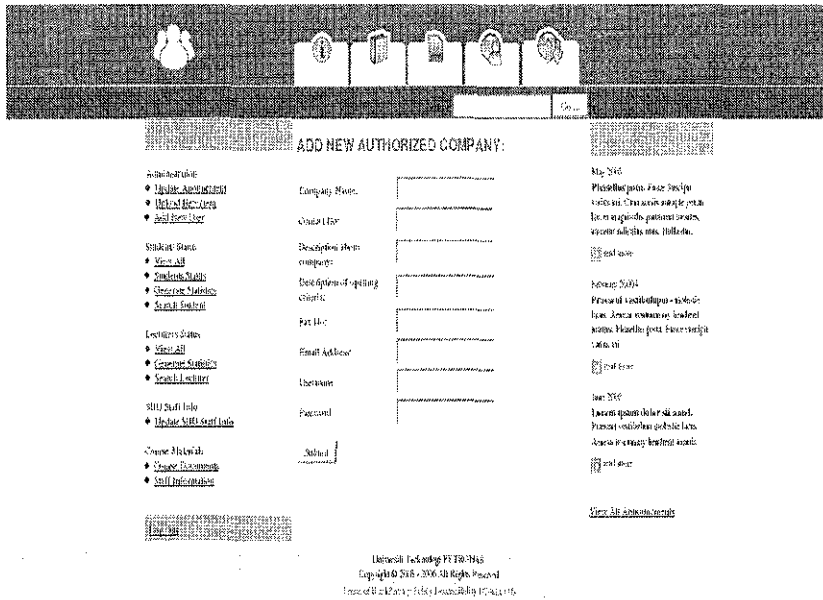


Figure 17: Industrial Internship Web Portal -> Administrator Page -> Add new User -> Authorized Companies

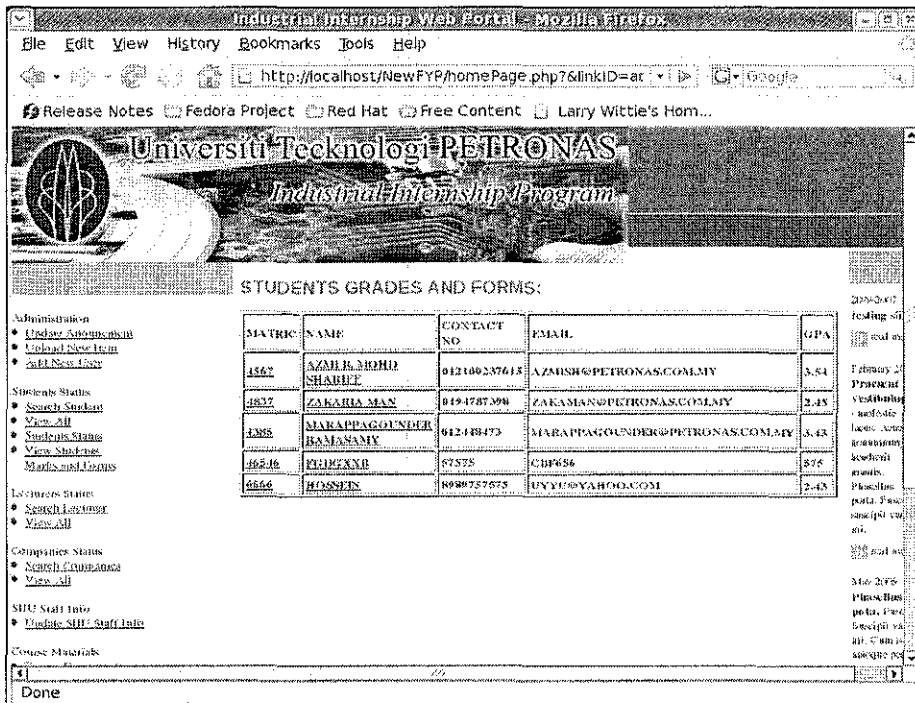


Figure 18: Industrial Internship Web Portal -> Administrator Page -> View List Of Student To Check Submitted Materials

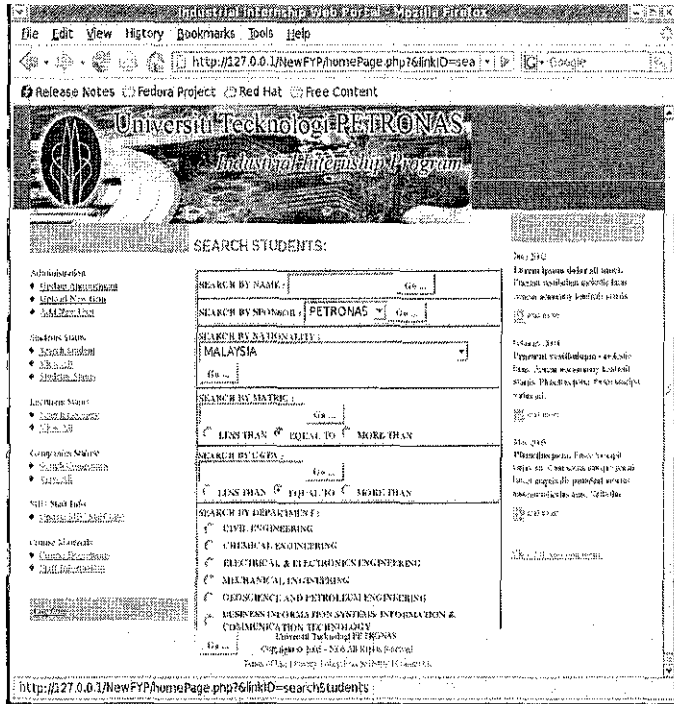


Figure 19: Industrial Internship Web Portal -> Administrator Page -> Search Students

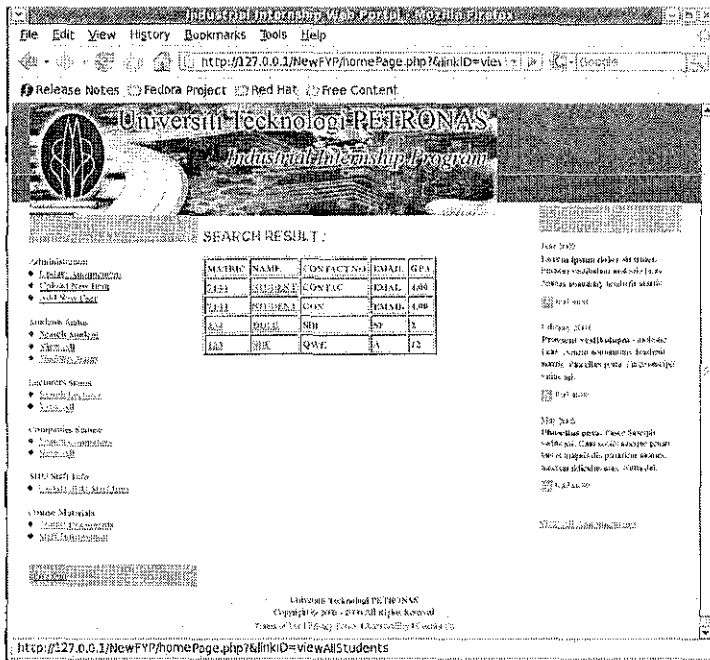


Figure 20: Industrial Internship Web Portal -> Administrator Page -> Result of Search

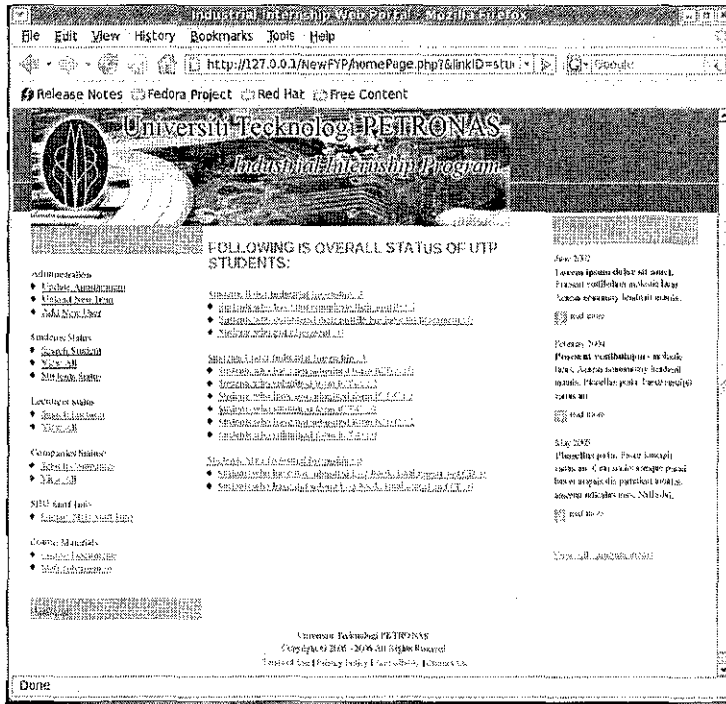


Figure 21: Industrial Internship Web Portal -> Administrator Page -> Report Generation

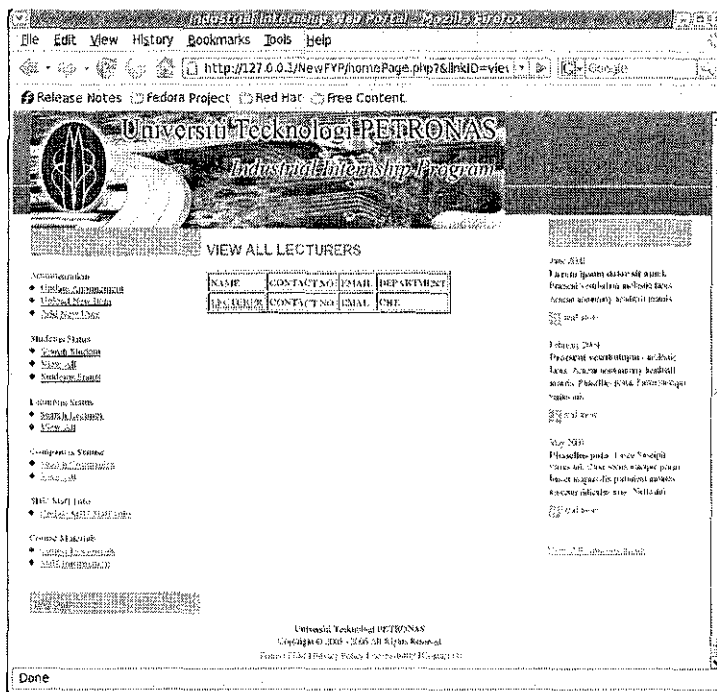


Figure 22: Industrial Internship Web Portal -> Administrator Page -> View All Lecturers

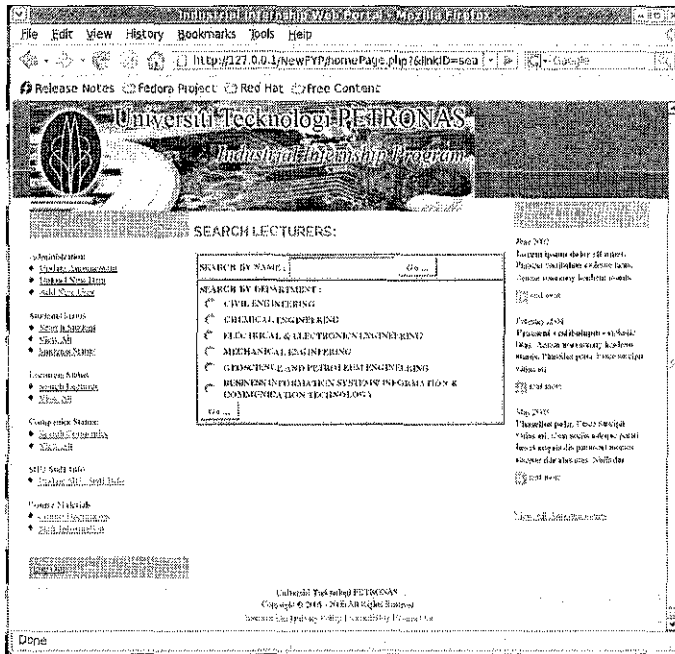


Figure 23: Industrial Internship Web Portal -> Administrator Page -> Search Lecturers

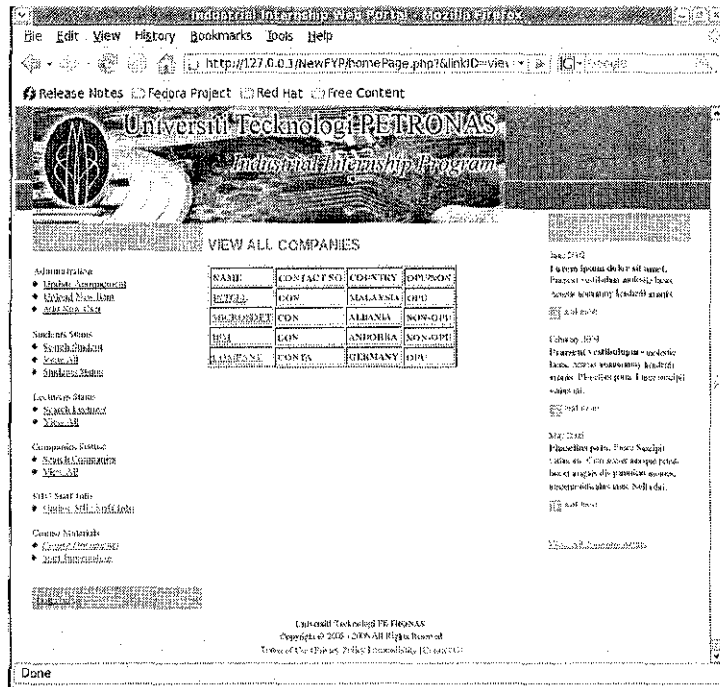


Figure 24: Industrial Internship Web Portal -> Administrator Page -> Result of Search

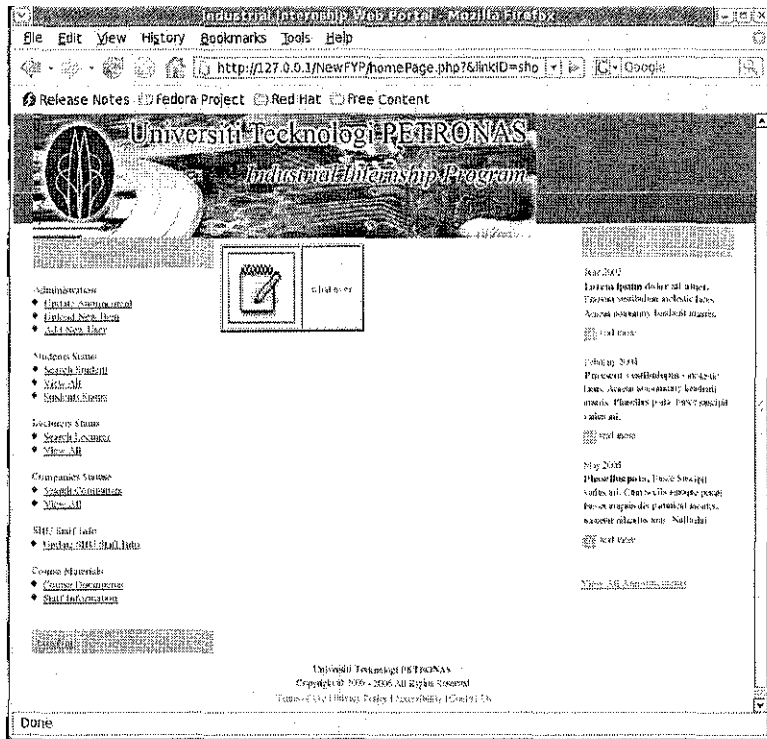


Figure 25: Industrial Internship Web Portal -> Administrator Page -> Course Documents

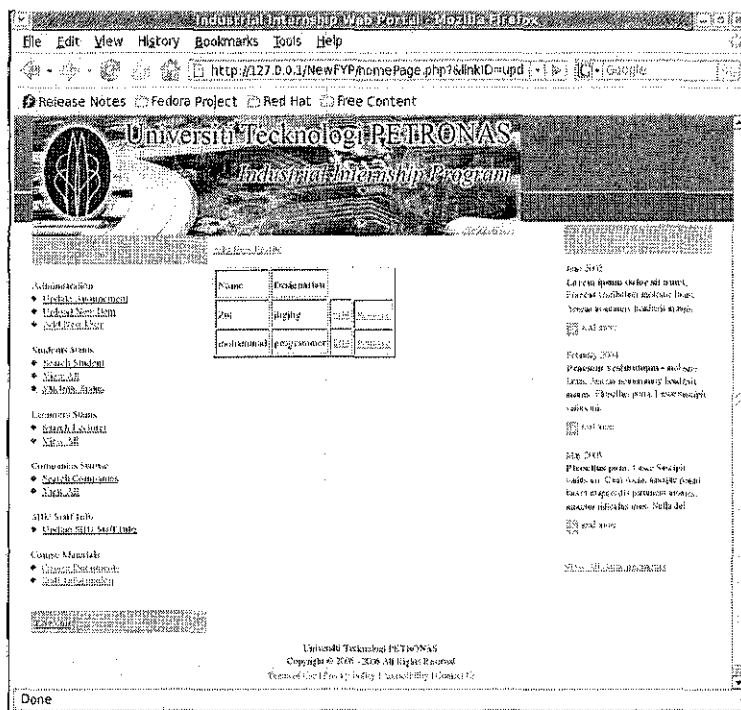


Figure 26: Industrial Internship Web Portal -> Administrator Page -> SIIU Profiles

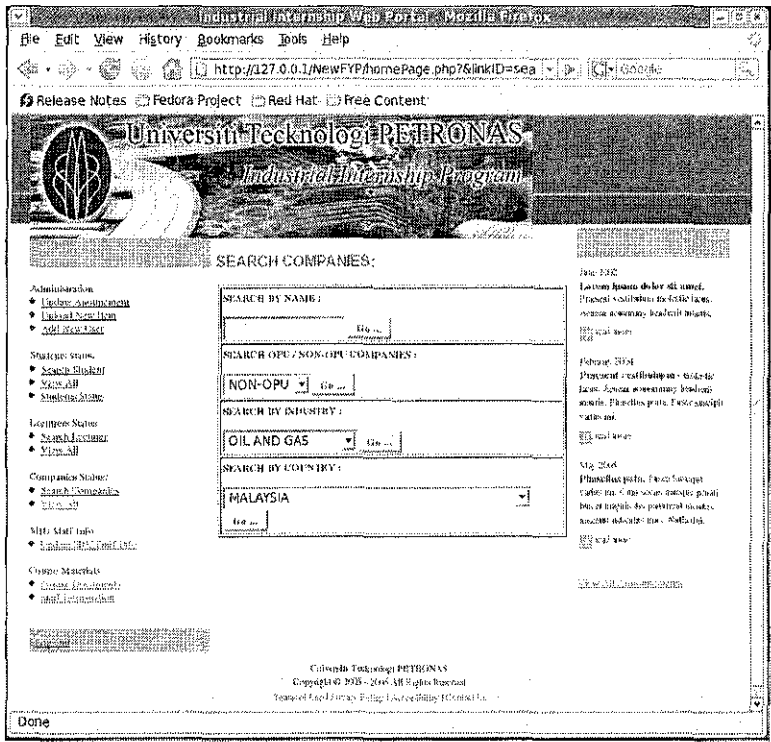


Figure 27: Industrial Internship Web Portal -> Administrator Page -> Search Companies

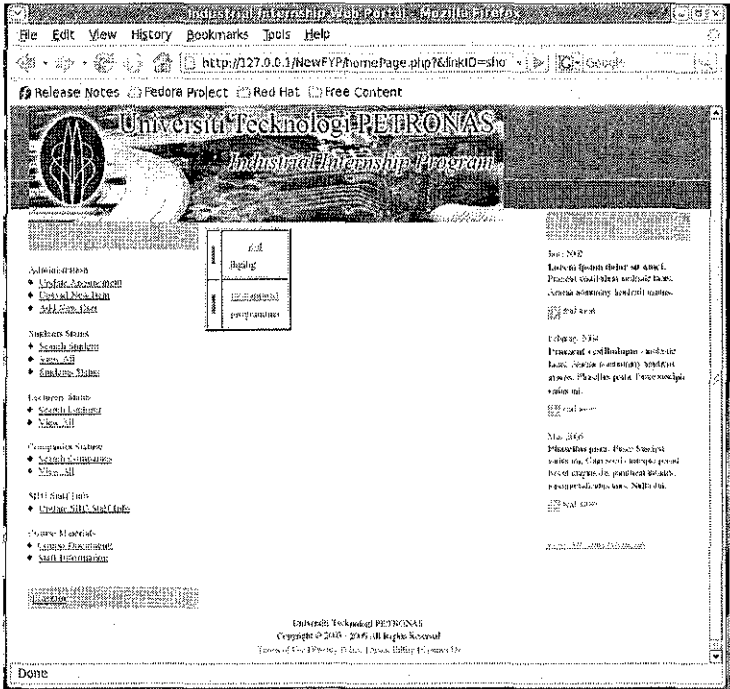


Figure 28: Industrial Internship Web Portal -> Administrator Page -> View SIIU Profiles

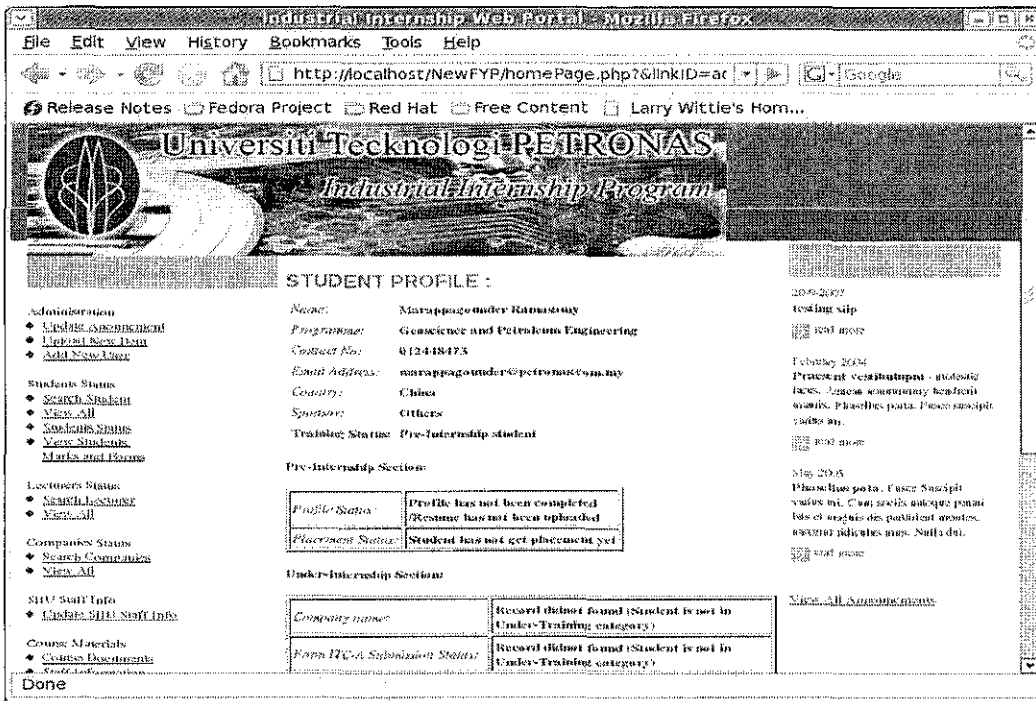


Figure 29: Industrial Internship Web Portal -> Administrator Page -> View Student Full Profile

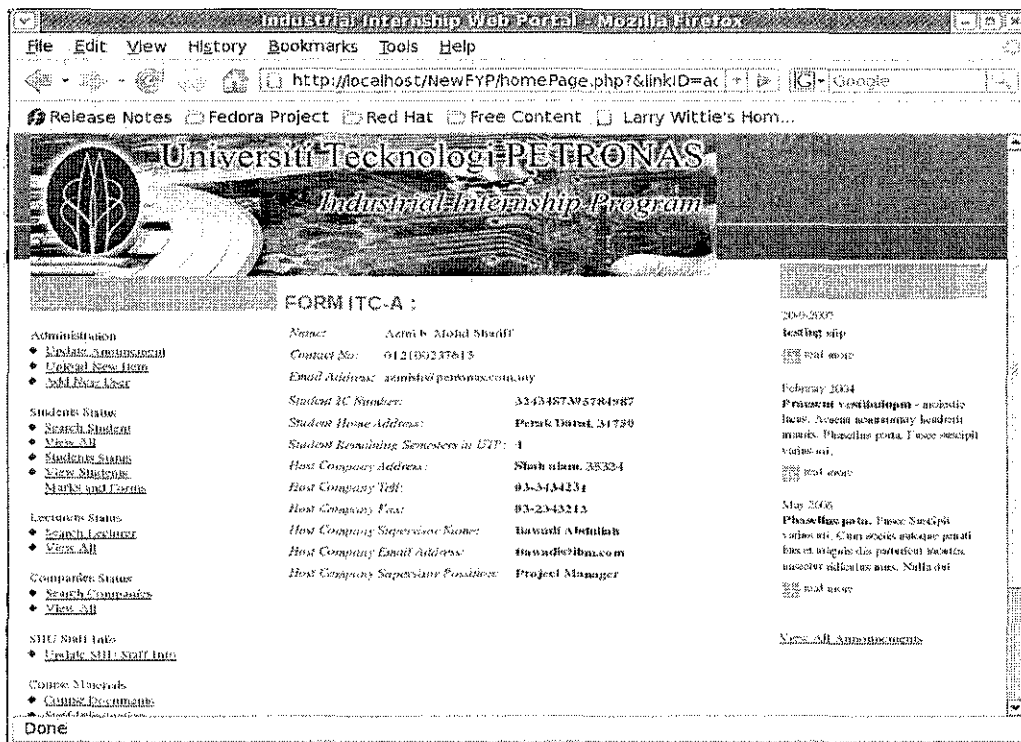


Figure 30: Industrial Internship Web Portal -> Administrator Page -> View Form ITC-A

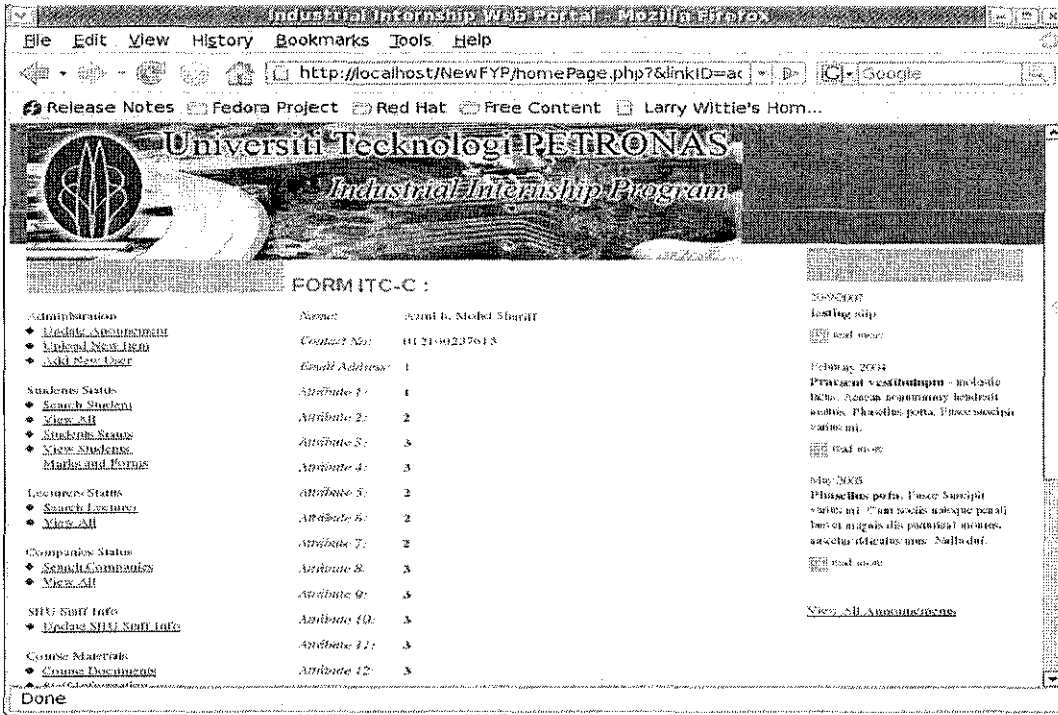


Figure 31: Industrial Internship Web Portal -> Administrator Page -> View Form ITC-C

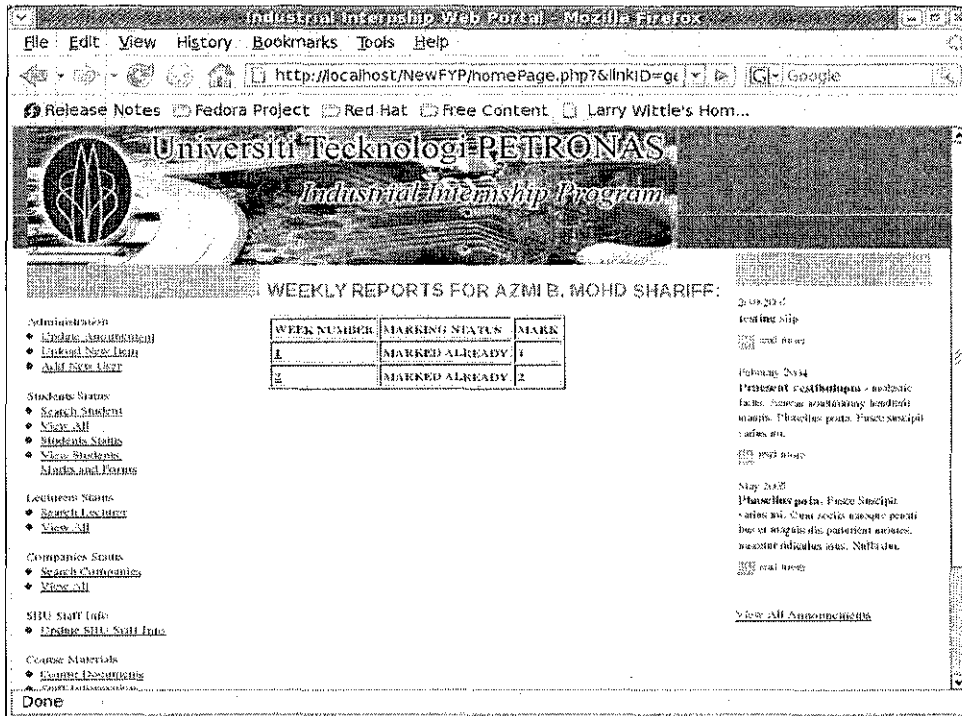


Figure 32: Industrial Internship Web Portal -> Administrator Page -> View List Of Weekly Reports

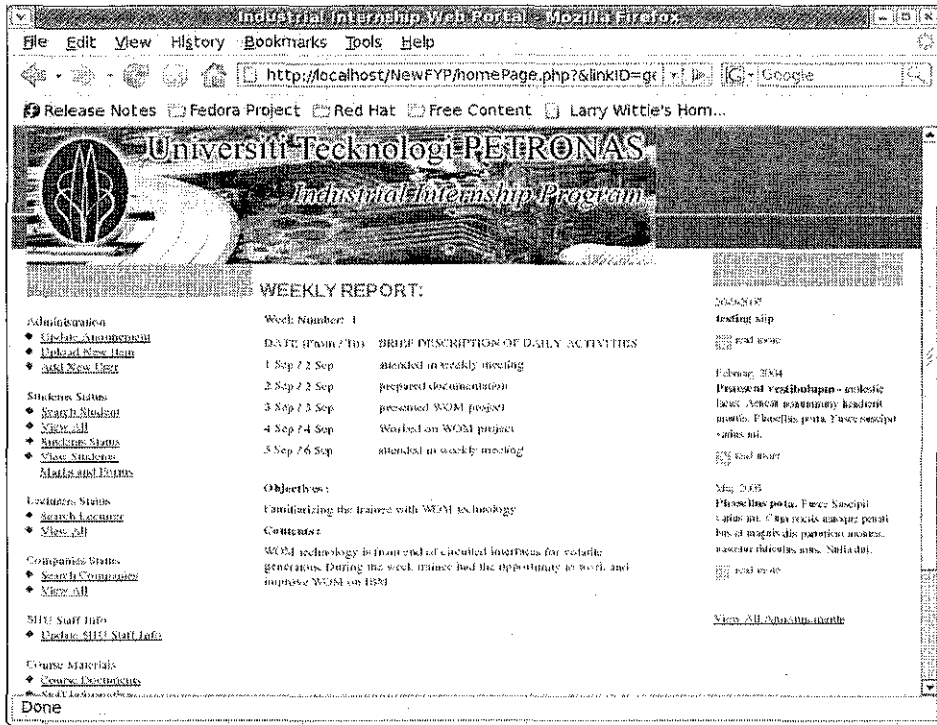


Figure 33: Industrial Internship Web Portal -> Administrator Page -> View Specified

Report Body

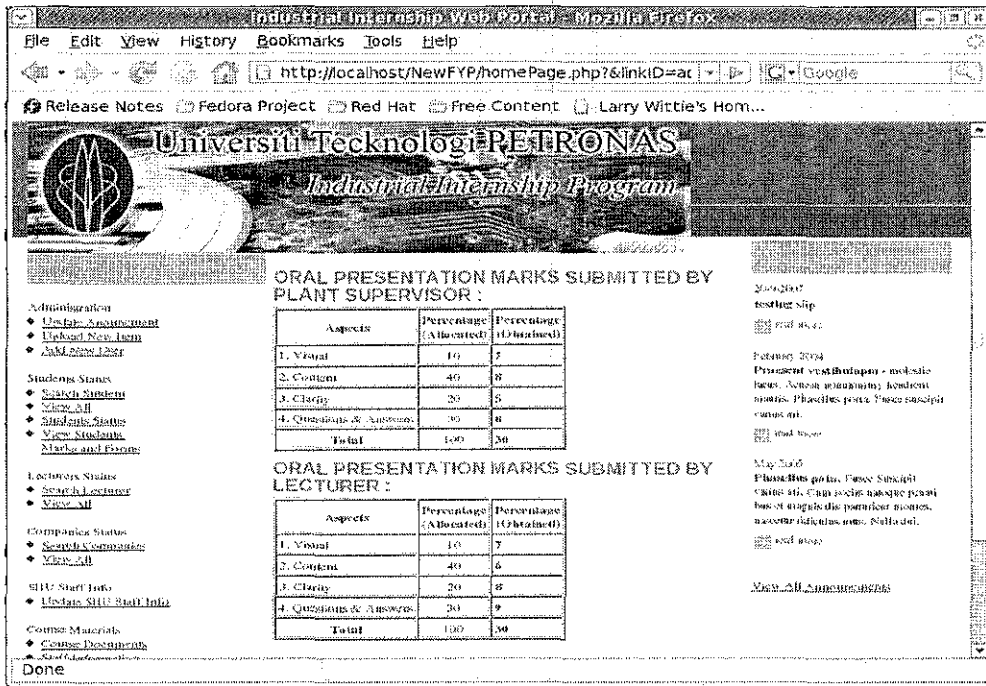


Figure 34: Industrial Internship Web Portal -> Administrator Page -> View Oral Presentation Marks

4.4.3 Lecturer's Page Snapshot

Following snapshot demonstrate lecturers page. Users with this privilege can visit students under their supervision, brows through archive, mark weekly report and finally mark final report.

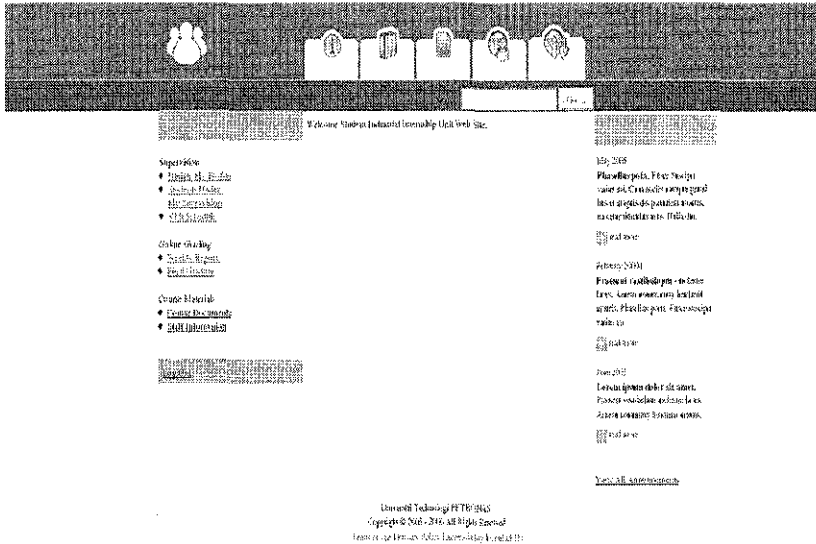


Figure 35: Industrial Internship Web Portal -> Lecturers' Page

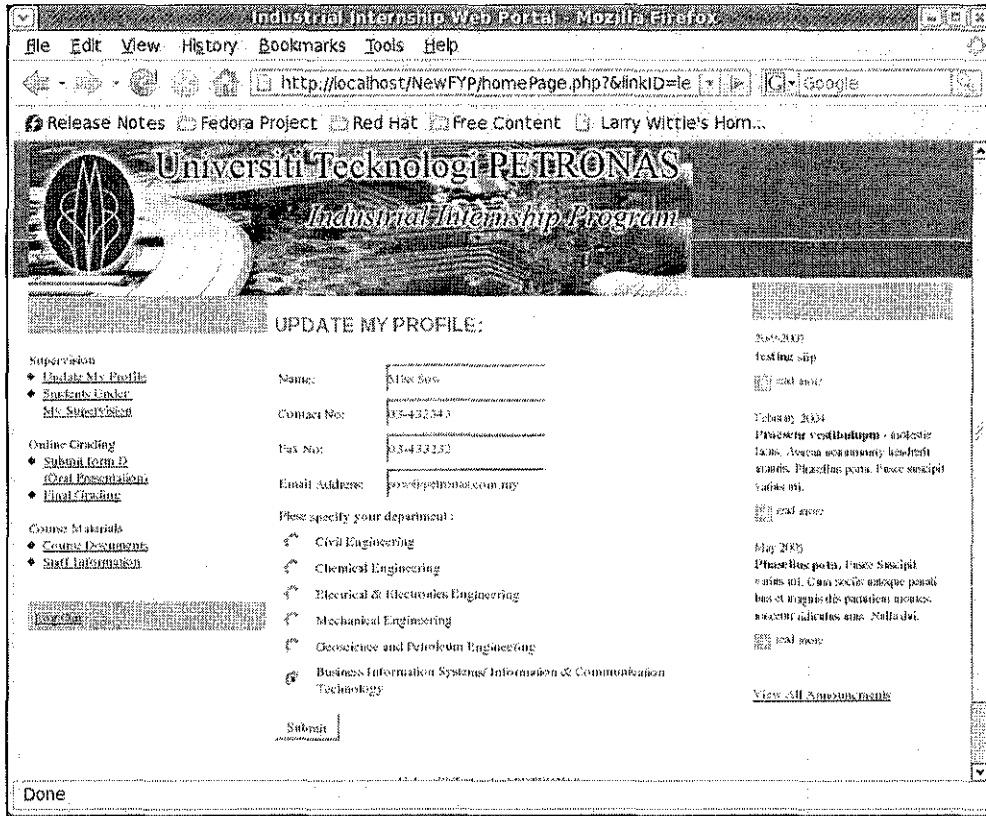


Figure 36: Industrial Internship Web Portal -> Lecturers' Page-> Update Profile

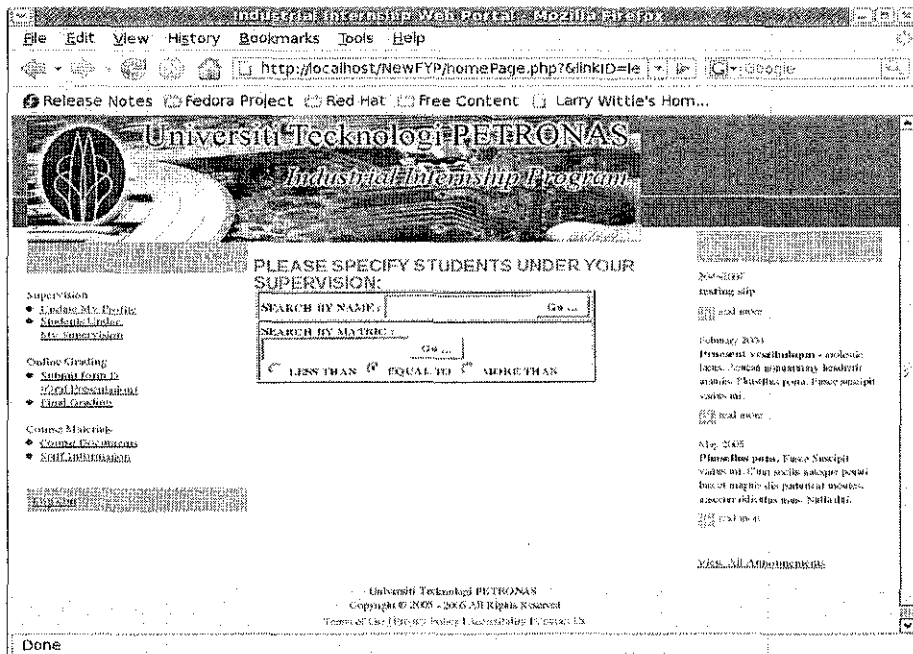


Figure 37: Industrial Internship Web Portal -> Lecturers' Page-> Search Students

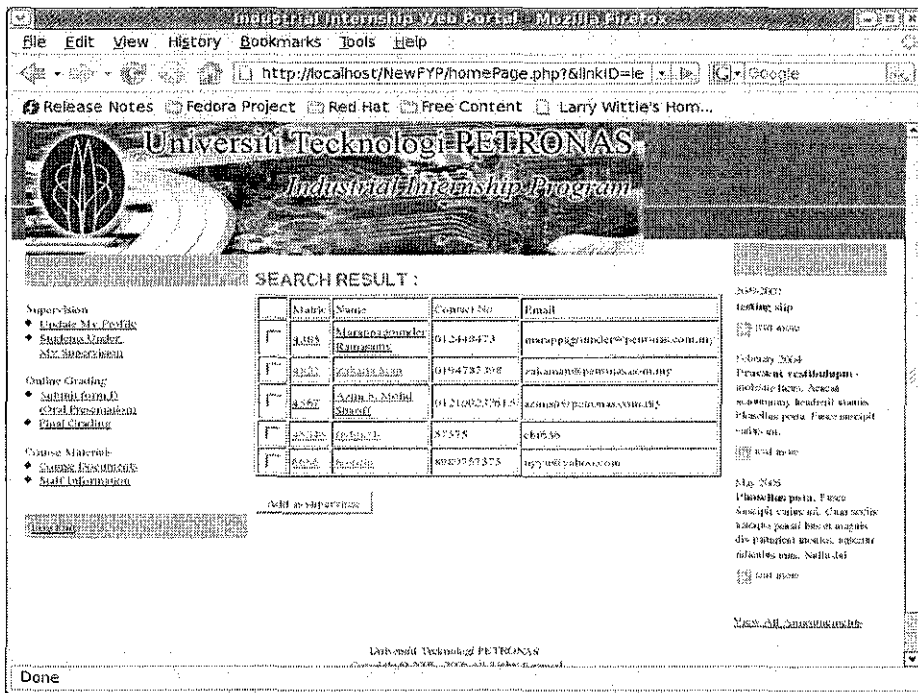


Figure 38: Industrial Internship Web Portal -> Lecturers' Page-> Add Student As Supervisee

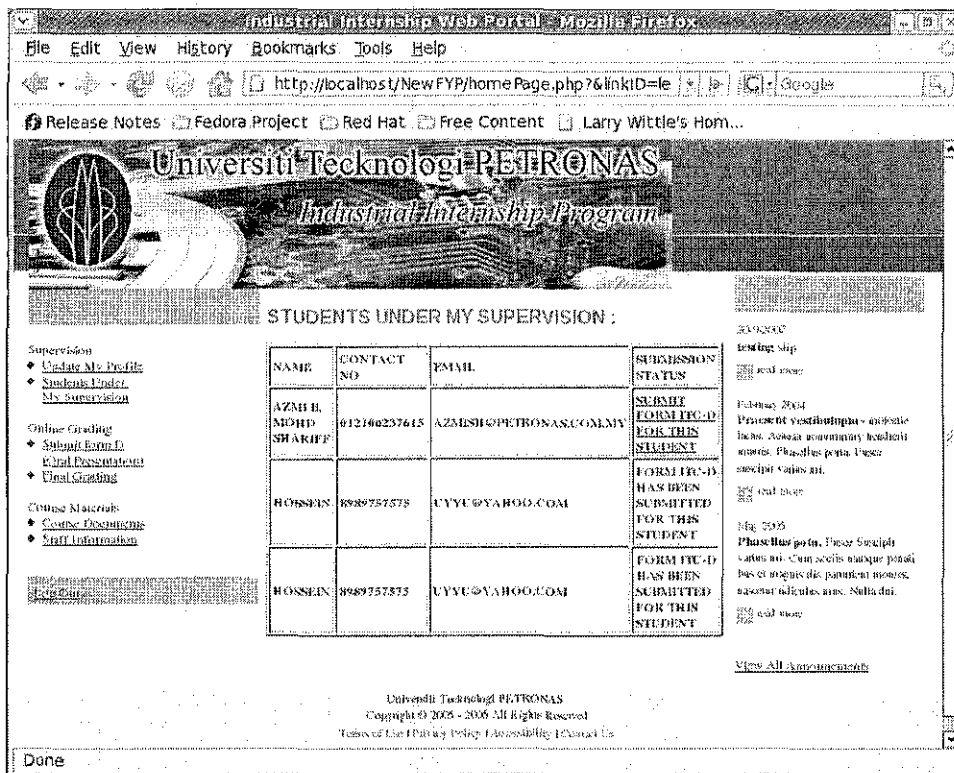


Figure 39: Industrial Internship Web Portal -> Lecturers' Page -> Submit Form ITC-D

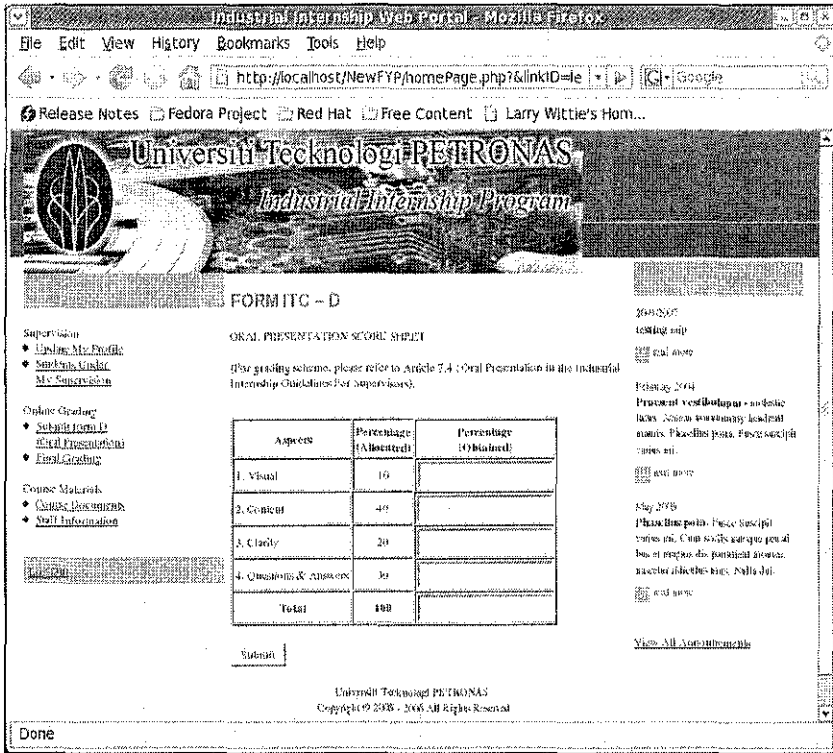


Figure 40: Industrial Internship Web Portal -> Lecturers' Page-> Form ITC-D Body

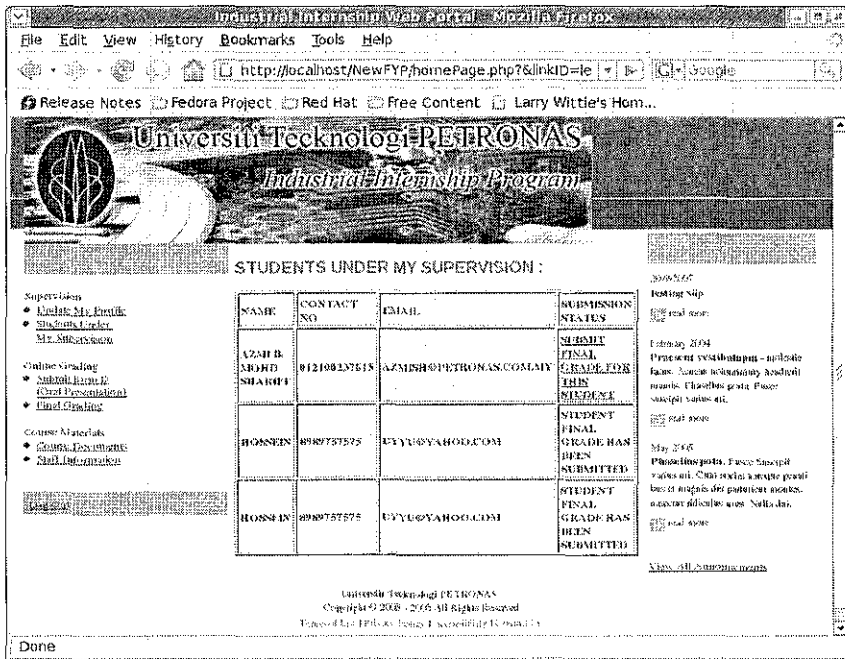


Figure 41: Industrial Internship Web Portal -> Lecturers' Page-> Submit Final Grade

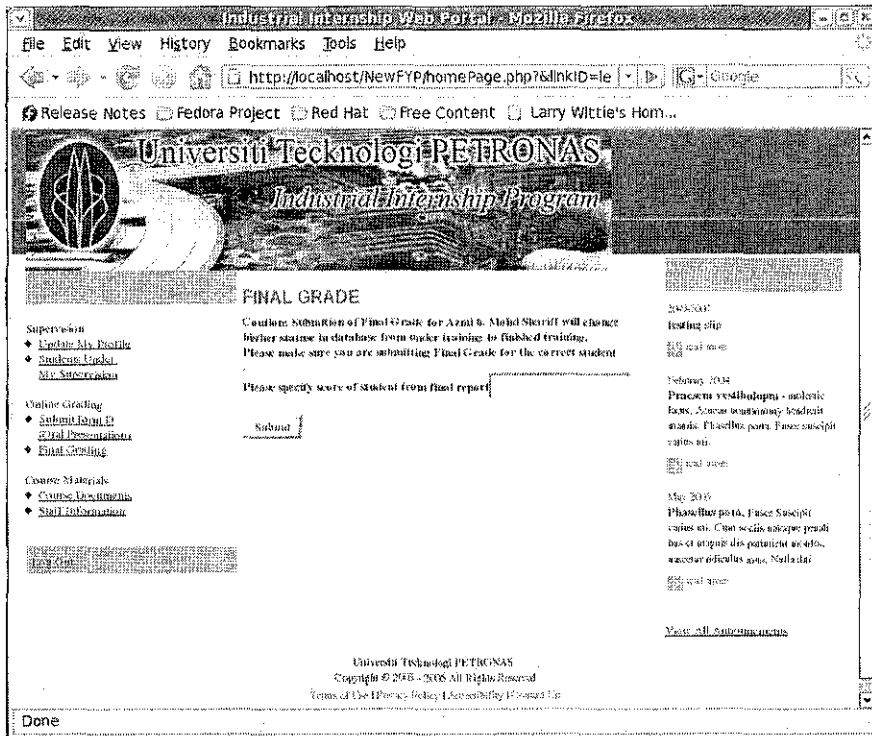


Figure 42: Industrial Internship Web Portal -> Lecturers' Page-> Submit Final Grade Body

4.4.4 Student's Page Snapshot

Following snapshots demonstrate student page. Users with this student privilege fall under two categories according to their placement status. First group consists of students who have not get placement yet. This group can update their profile, upload their resume, search for companies, send application letters, accept or reject offer letters and finally check their placement status. Second group consists of students who got their placement. These students can type their weekly report, type their detailed report and submit form ICT-A.

Both group of users have general privileges like browsing through archive and checking uploaded materials.

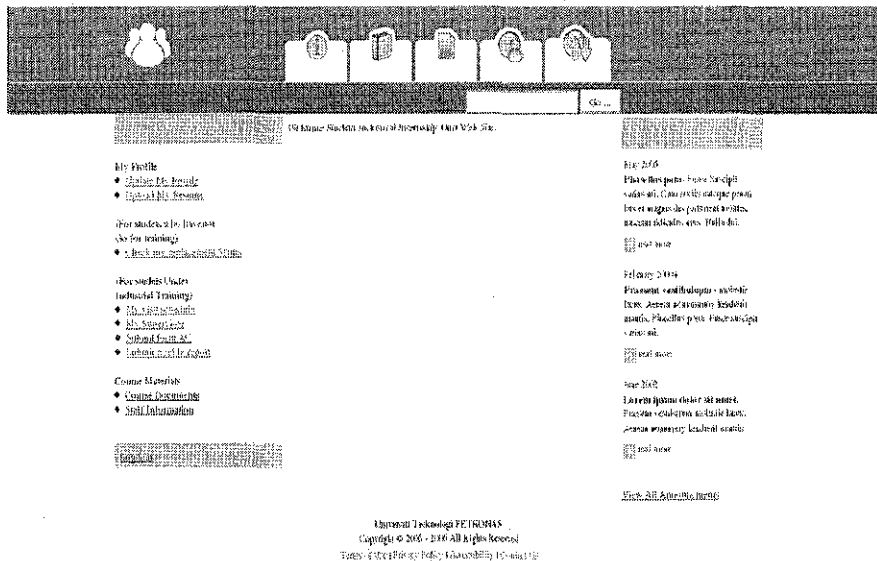


Figure 43: Industrial Internship Web Portal -> Students' Page

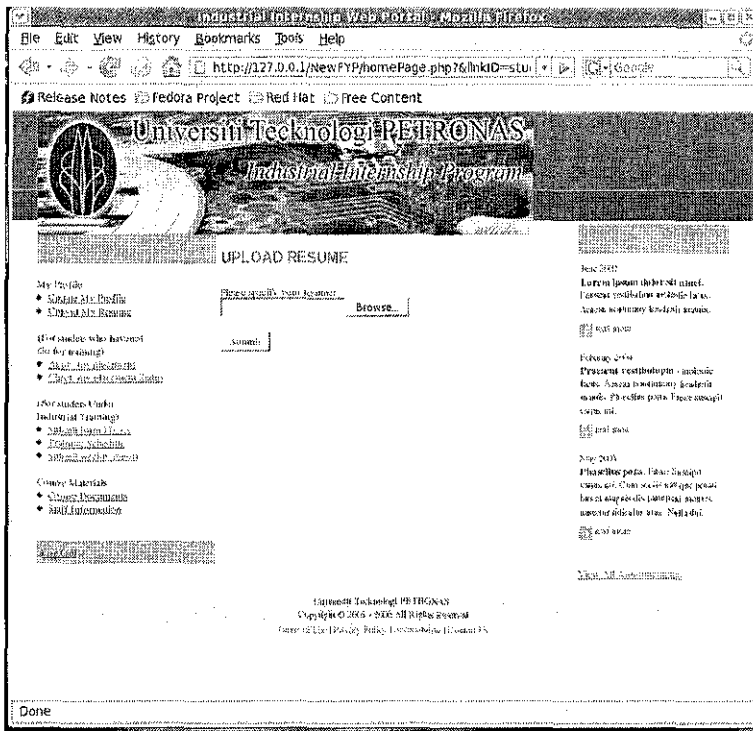


Figure 44: Industrial Internship Web Portal -> Students' Page-> Upload Resume

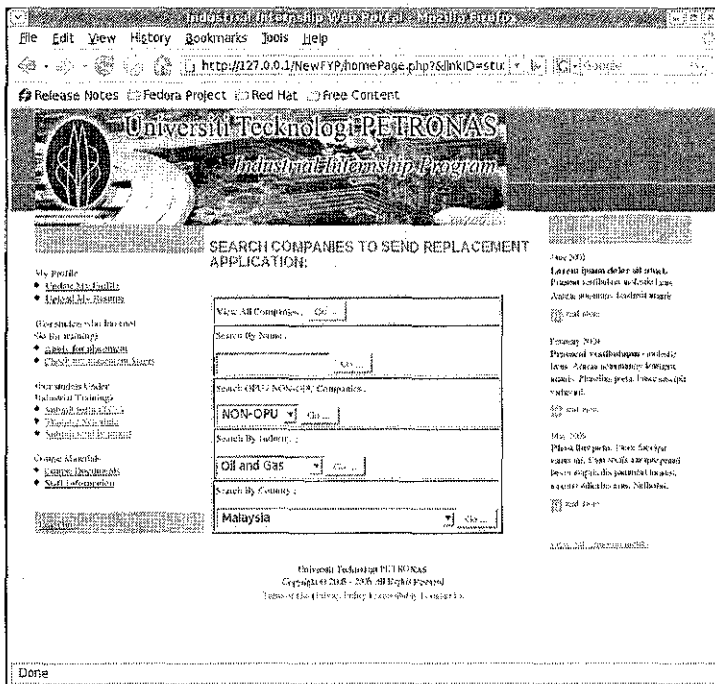


Figure 45: Industrial Internship Web Portal -> Students' Page-> Search Companies

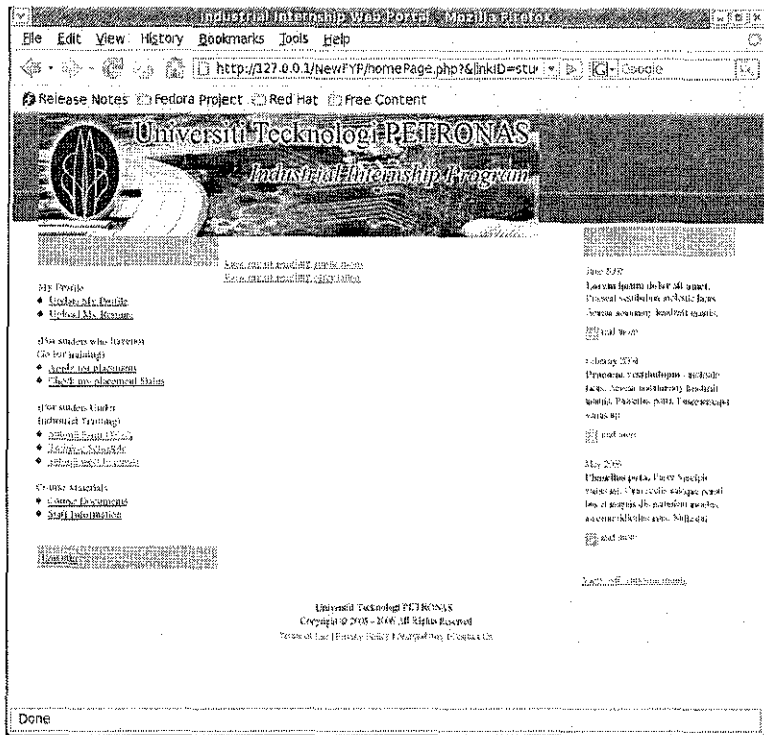


Figure 46: Industrial Internship Web Portal -> Students' Page-> Check Placement Status

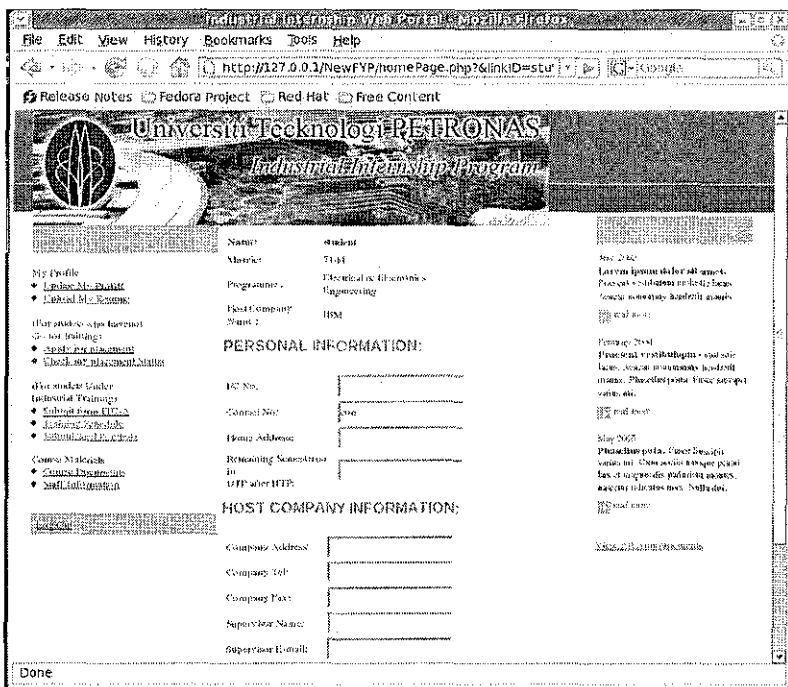


Figure 47: Industrial Internship Web Portal -> Students' Page-> Submit Form ITC-A

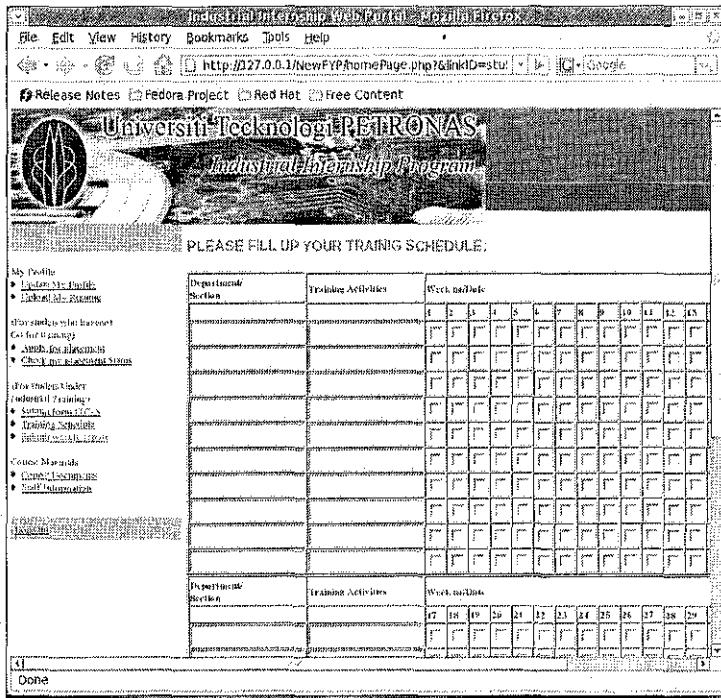


Figure 48: Industrial Internship Web Portal -> Students' Page-> Training Schedule

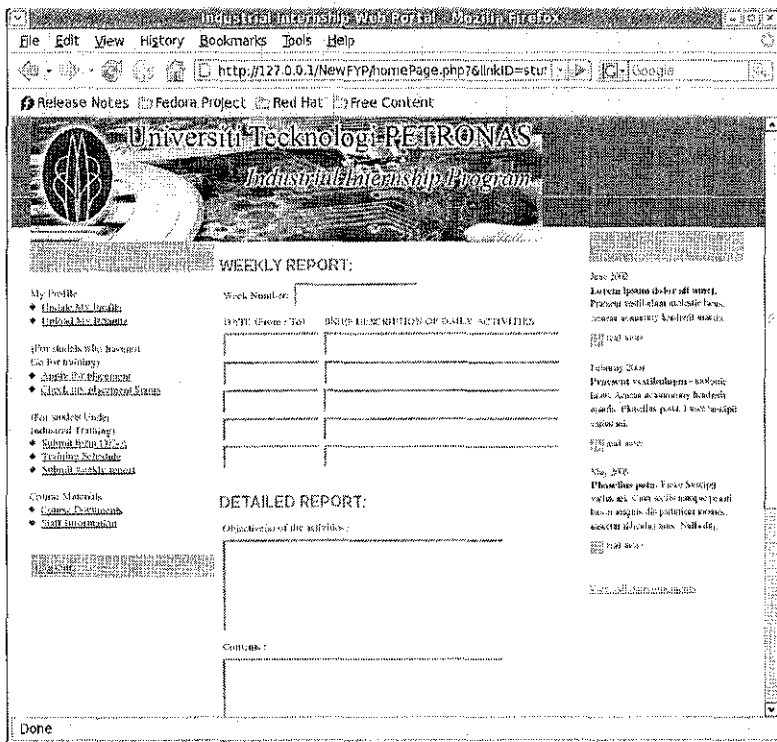


Figure 49: Industrial Internship Web Portal -> Students' Page-> Weekly Reports

4.4.5 Plant Superior Page

This page consist of plant supervisor functionalities which consists of updating profile, marking weekly reports, submission of 19 attribute form and finally submission of oral presentation marks.

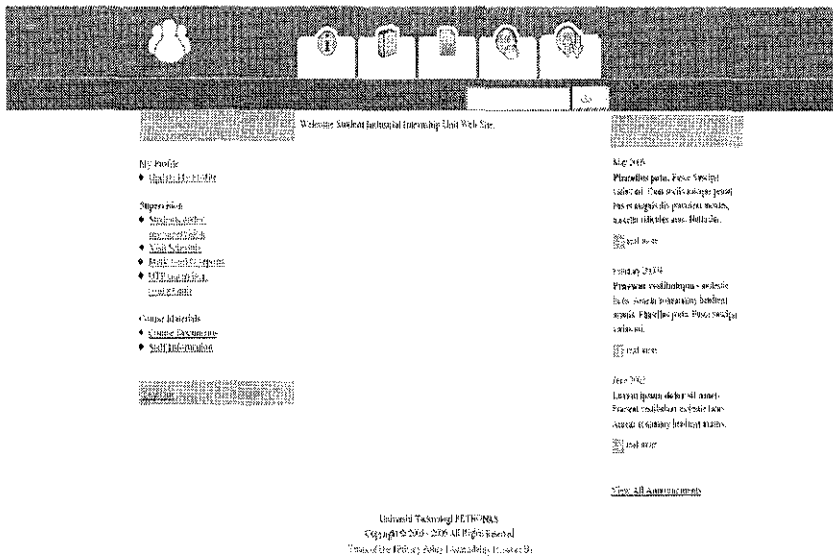


Figure 50: Industrial Internship Web Portal -> Plant Supervisor's Page

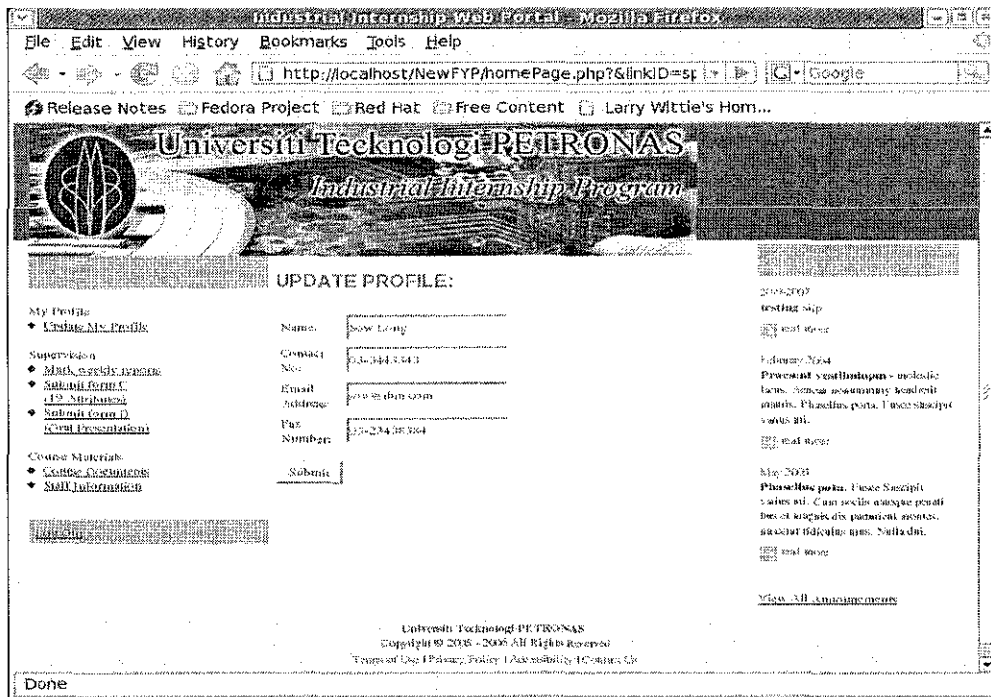


Figure 51: Industrial Internship Web Portal -> Plant Supervisor's Page-> Update Profile

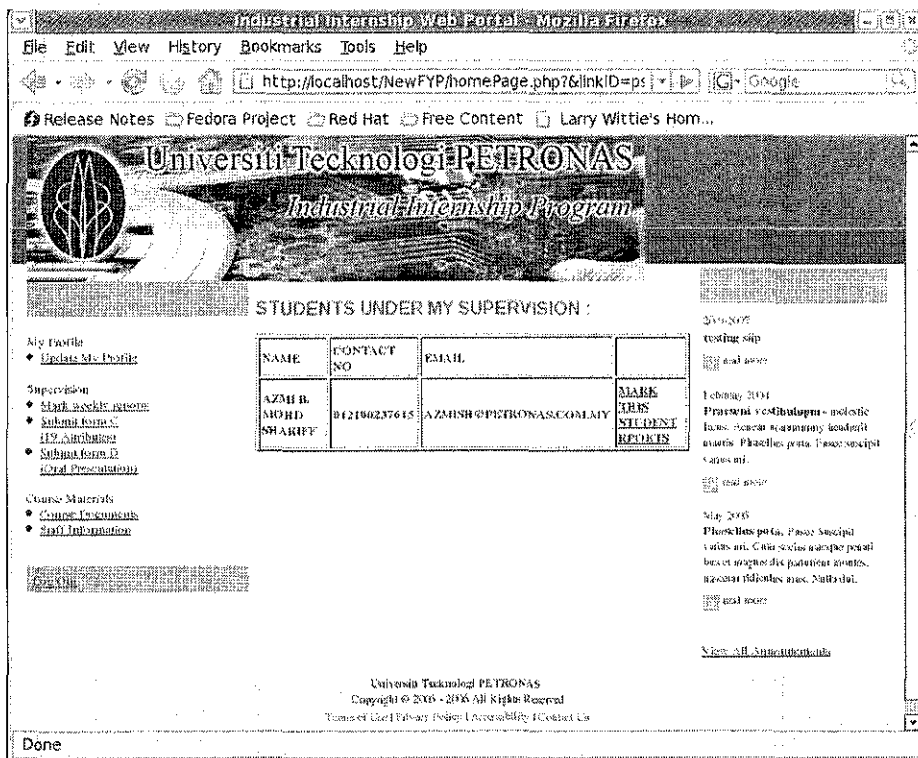


Figure 52: Industrial Internship Web Portal -> Plant Supervisor's Page-> Mark Weekly Report

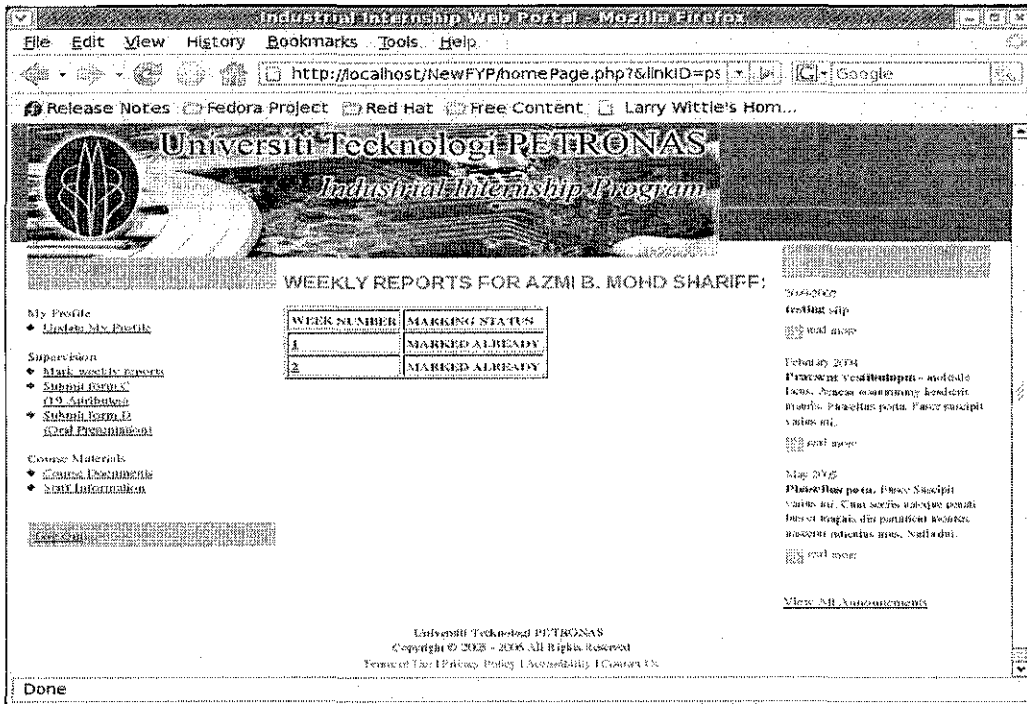


Figure 53: Industrial Internship Web Portal -> Plant Supervisor's Page -> List of Reports

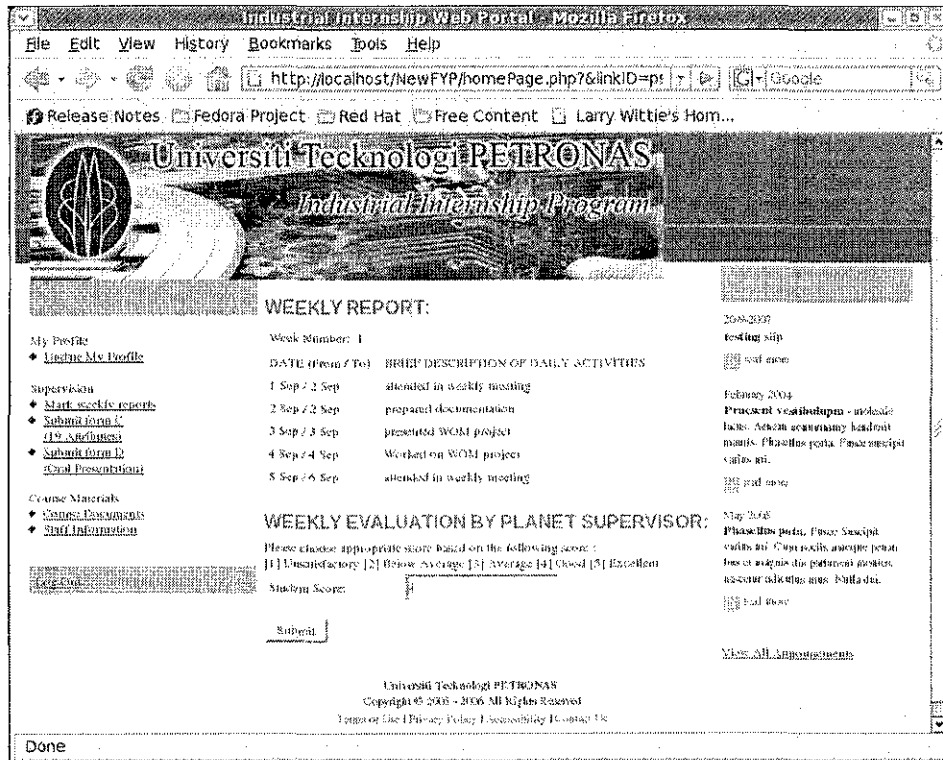


Figure 54: Industrial Internship Web Portal -> Plant Supervisor's Page -> Report Body

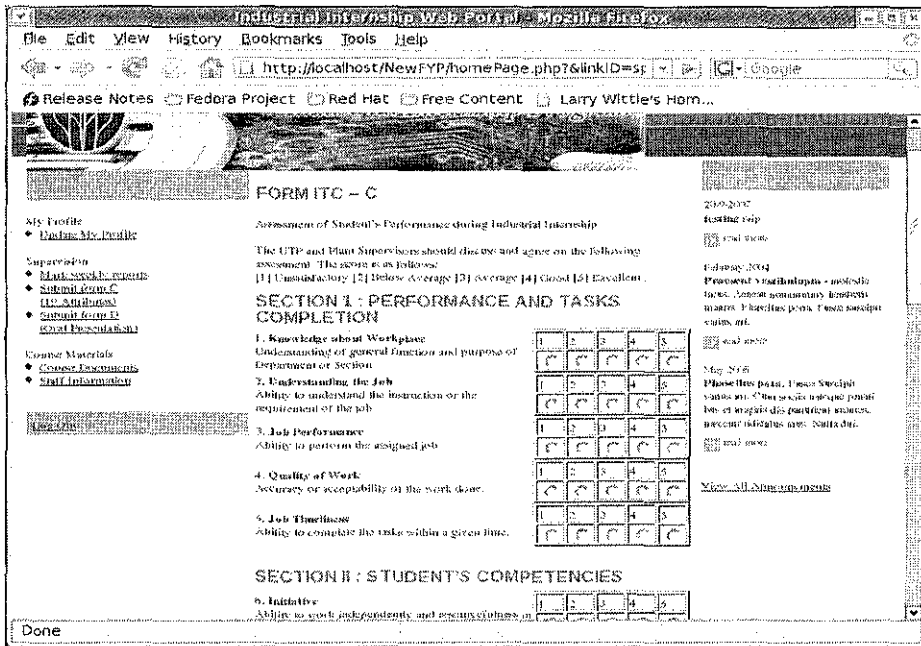


Figure 55: Industrial Internship Web Portal -> Plant Supervisor's Page->
Submit Form ITC-C

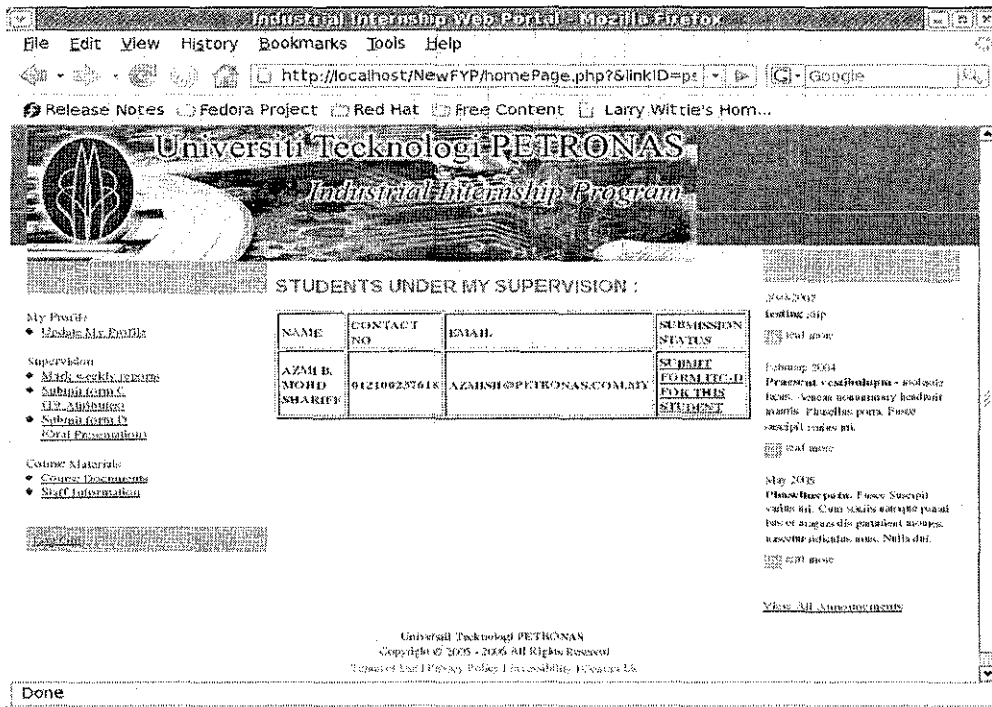


Figure 56: Industrial Internship Web Portal -> Plant Supervisor's Page->
Submit Form ITC-D

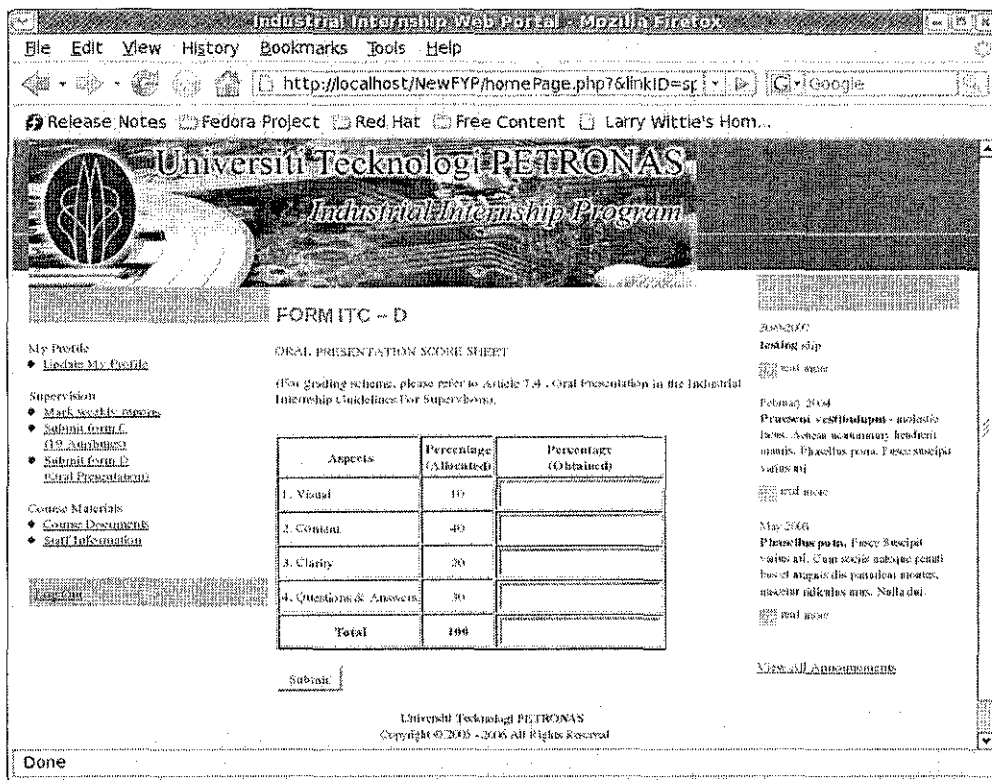


Figure 57: Industrial Internship Web Portal -> Plant Supervisor's Page-> Submit From ITC-D Body

4.4.6 Authorized Companies Page

This page consists of authorized companies privileges. It includes updating company profile, searching students, sending them offer letter and finally accept or reject student application letters.

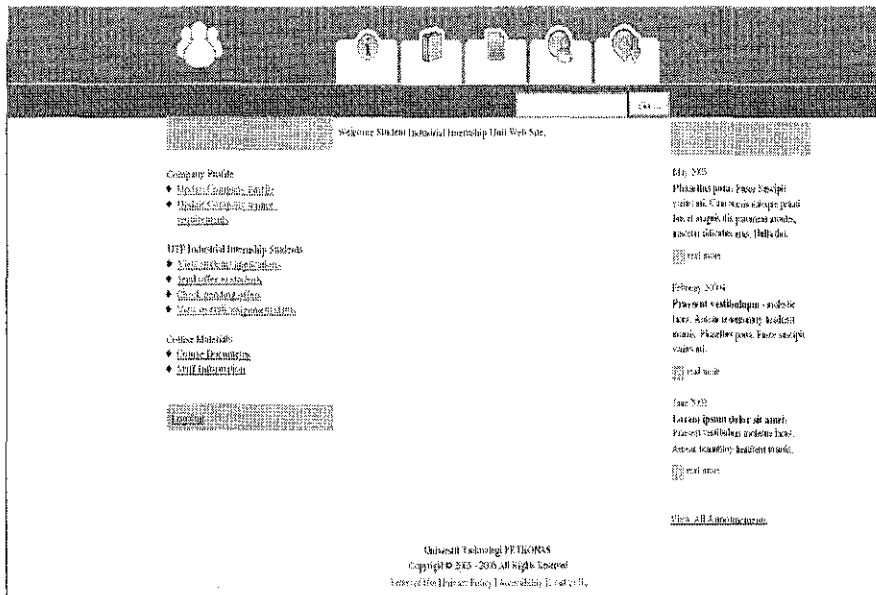


Figure 58: Industrial Internship Web Portal -> Authorized Company's Page

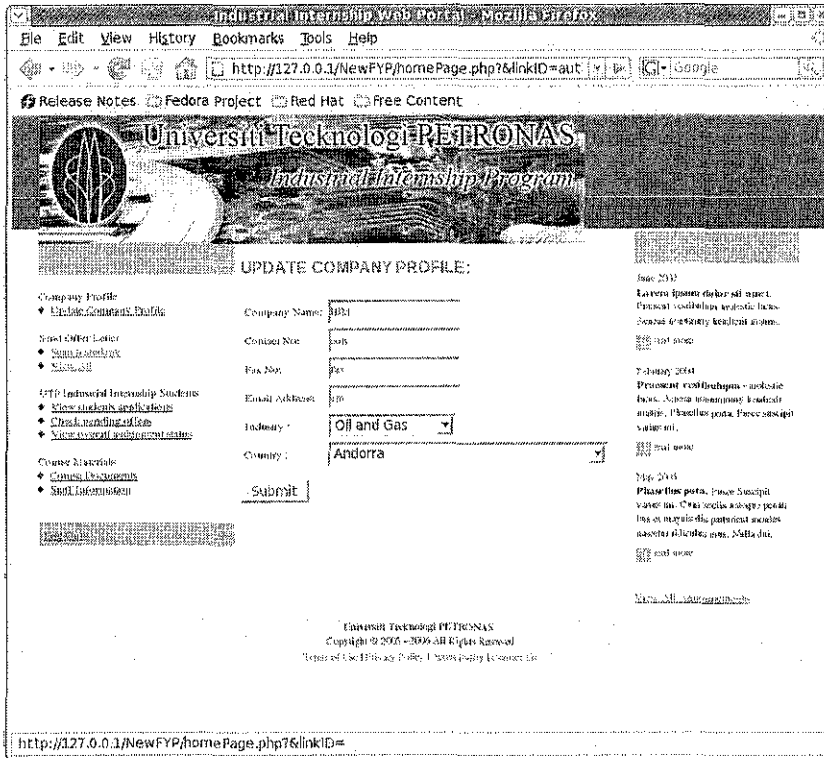


Figure 59: Industrial Internship Web Portal-> Authorized Company' Page-> Update Profile

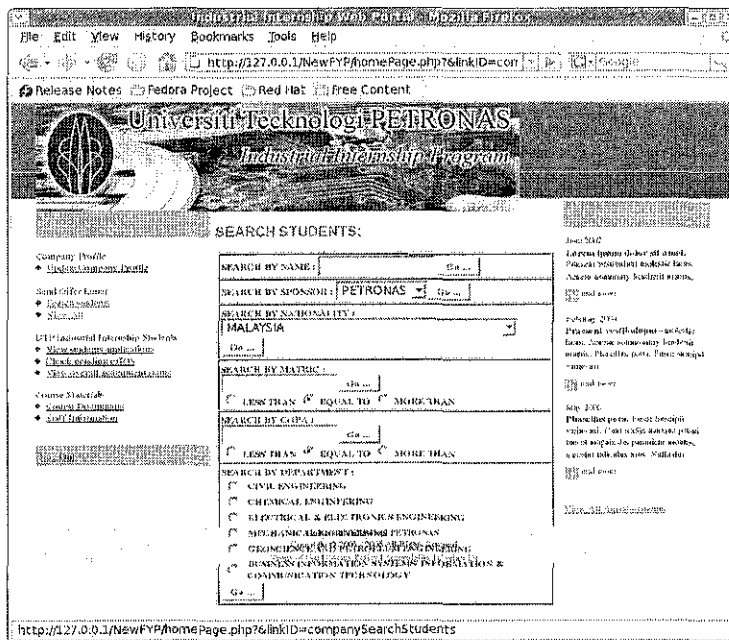


Figure 60: Industrial Internship Web Portal -> Authorized Companies' Page-> Search Student

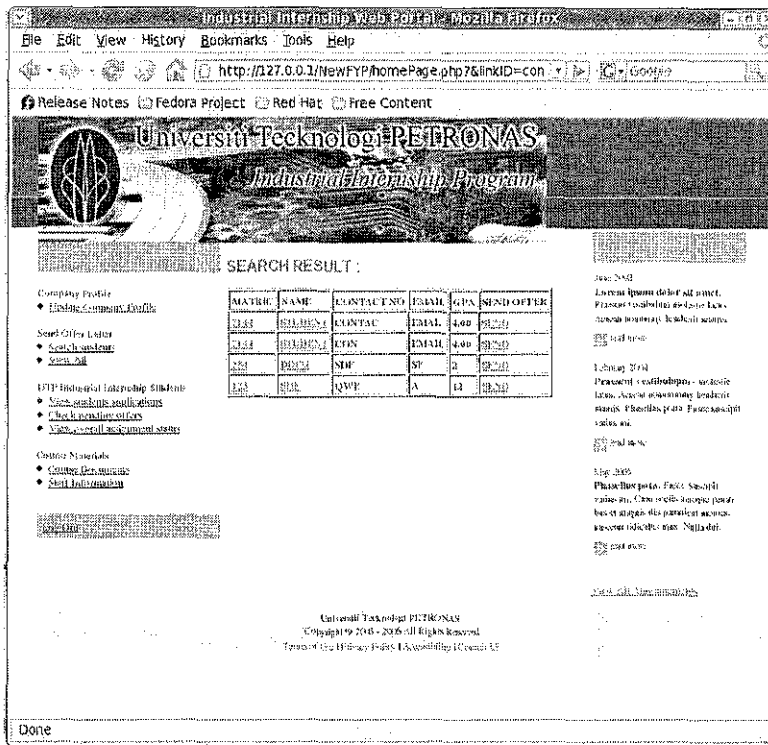


Figure 61: Industrial Internship Web Portal -> Authorized Companies' Page-> Search Results

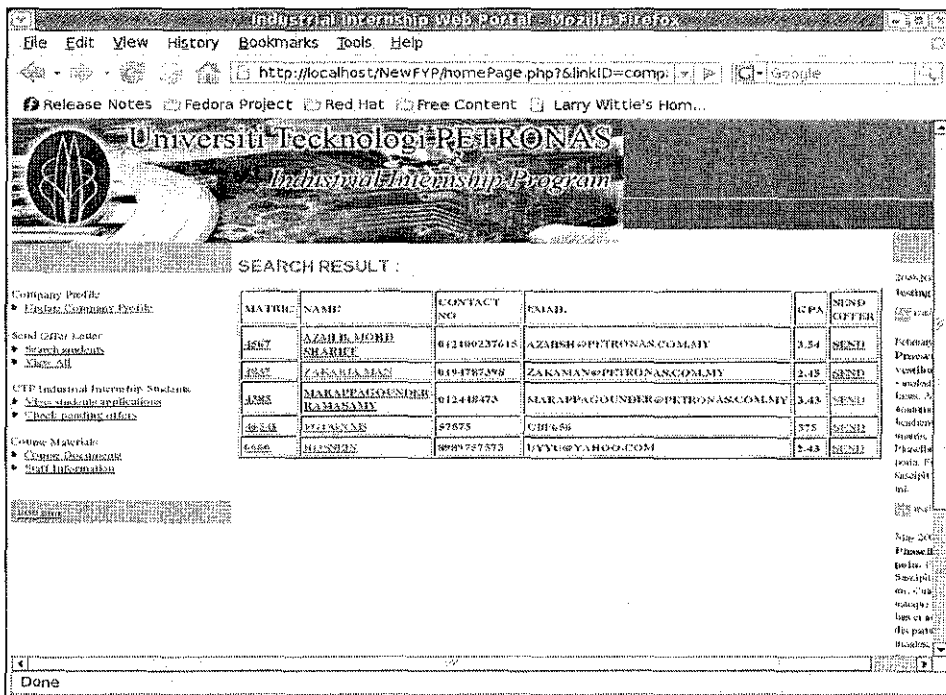


Figure 62: Industrial Internship Web Portal -> Authorized Companies' Page-> View all

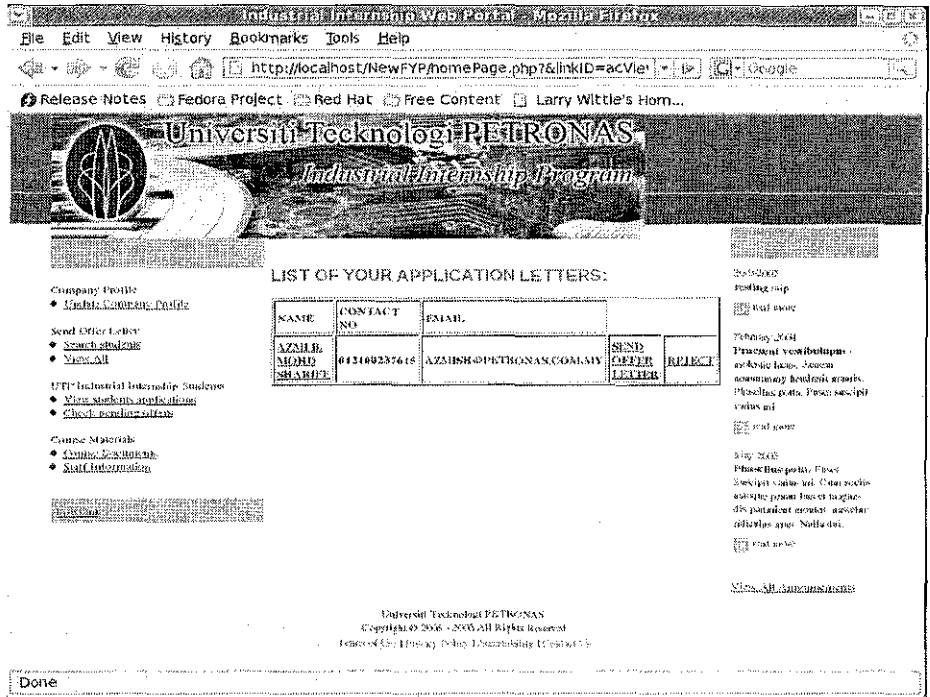


Figure 63: Industrial Internship Web Portal -> Authorized Companies' Page-> View Pending Application letters

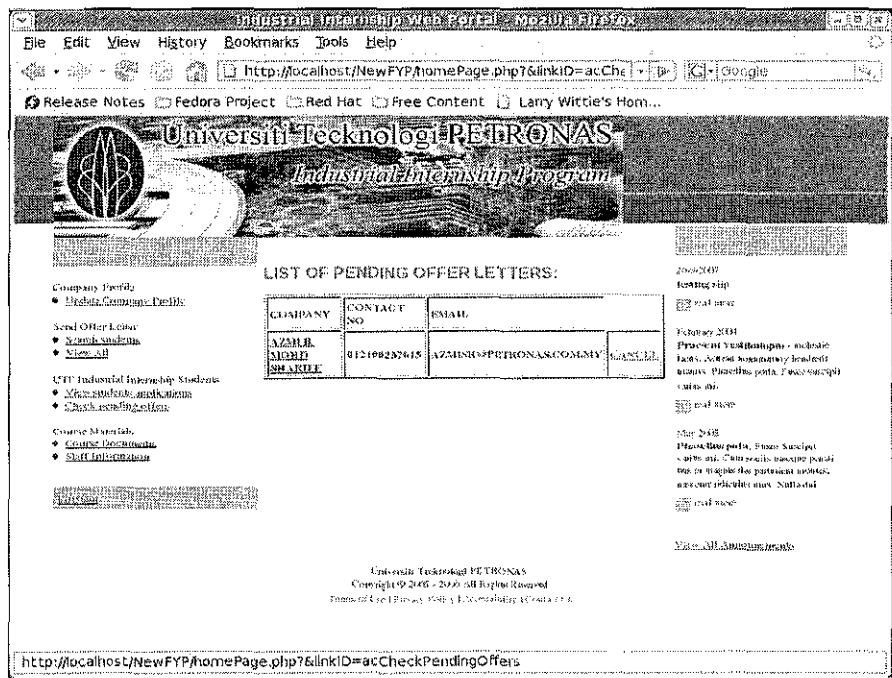


Figure 64: Industrial Internship Web Portal -> Authorized Companies' Page-> View Pending Offer Letters

4.5 System Testing

System tested by Industrial Internship Unit on September 20, 2007. Test conducted primarily on 80 identified system functionality for all five groups of users plus guest user. Out of 80 functionalities, 72 functions ran smoothly, 6 function ran smoothly but additional requirement added and 2 functions ran with partial bugs. Figure below depict the result in pie chart graph:

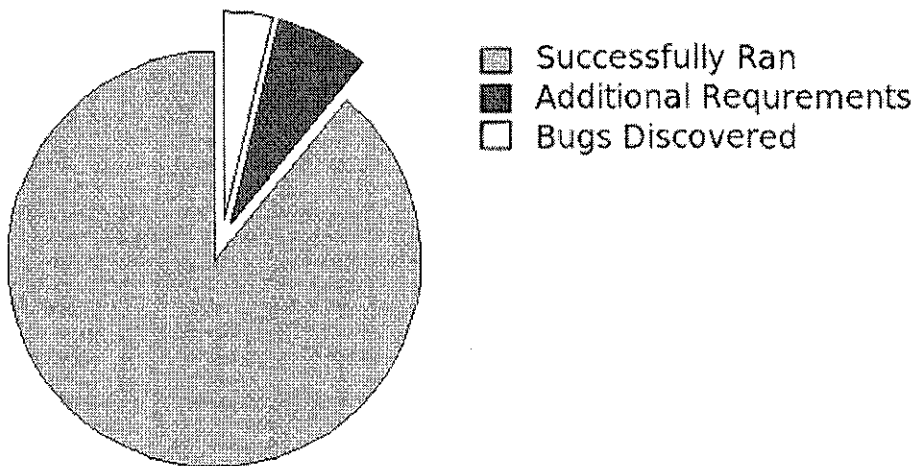


Figure 65: SIIU Web Site Testing Results.

Additional requirements are as follow:

1. After Plant Supervisor submit form ITC-D Java Script pop up menu should alarm if rang and sum of marks are not valid.
2. Student update profile section should be further aligned.
3. Student can check if his/her resume is uploaded.
4. Authorized Companies need to use CGPA rather than GPA.
5. Authorized Companies Search students section needs further interface elaboration.
6. After lecturer submitted final grade, final score of student should be calculated automatically according to online guide mentioned weights.

Two bugs discovered include:

1. While student fills weekly report, by pressing Enter the form will be submitted though it is not completed.
2. Incomplete forms once submitted cause further bugs when student checks his/her weekly reports marks.

According to Mr. Affendi once these bugs removed system provide 50 percent of whole business flow. By rectifying text boxes and adding functionality which let administration import Excel files system can sustain 65 percent of business process.

As such he is would like to ask CIS department to allocate necessary resources and supervise another student to continue working on this project as his or her FYP on coming semester.

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APPENDICES

Appendix 1. Interview with Mr.Affendi

After visiting system's first prototype, Mr.Affendi expressed his opinion as below:

This system (first prototype) mostly focus on bulletin and forums functionalities. In fact it is good, but at the moment there are other functionalities which have higher priorities for us. Activities which we expect this system to do is tracing student before industrial internship, let them submit their weekly report during industrial internship and let plant supervisor to mark them online. It is of grate importance that every thing in system would be real time, once user change his profile, upload his resume and so on, the affect should be disseminate throughout system.

Points mentioned above worth more elaboration. At the moment we have difficulties tracing students status during the semester before industrial internship. It might happen that some companies send students offer letter which they never receive or student who send their application letter to the company whom never receive. In addition we don't have any system to tell other companies a specific student found a placement and consequently allocate their offer to another student. Apart from students, companies who offer placements don't have any online system to check students strength and weaknesses so they can choose accordingly. As such, the system should let students to upload their resume, GPA, CGPA and let privileged companies to view them and send them offer letter. It might be considerable to put two weeks limitation for student to accept the offer and terminate the offer after two weeks if student doesn't confirm.

Another aspect of system is active during industrial internship where student can submit their weekly report online. System should save time stamp when student submit their report so late submissions would be recognizable. By the time student submit his or her report plant Supervisor should be able to open students report and mark them online. As mentioned above this whole thing must be real time so UTP supervisor can check grades right away and in case there is any problem or miss understanding, he or she try to help.

arrival of students mark from host company which is a normal case where company's location is far from UTP or possibly is not in Malaysia.

Finally after industrial internship lecturer's must be able to mark reports on the website and send final marks to IIU. At the moment this process is troublesome and time consuming. Specifically considering late arrival of students mark from host company which is a normal case where company's location is far from UTP or possibly is not in Malaysia.

Appendix 2. Test Cases

Test Case Work Paper – <u>Industrial Internship Automation</u>						
Test Case ID:		Original Author:		Last Updated By:		
Parent Use Case ID:		Original Date:		Last Updated On:		
Test Objective: Test Guest User Functionalities						
Item No.	Test Condition	Operator Action (Flow of Event)	Input Specification	Output Specification (Expected Result)	Pass/Fail	Comments
1.	Guest User want to view course materials	1. User click on Course Documents		List of uploaded materials appear and user can download them		
2.	Guest User want to view SIIU staff profile	1. User click on Staff Information		List of staff will appear and user can view individual profiles		
3.	Gust User	1. User click on View all announcements.		Announceme nt body will		

want to view announcements	2. From appeared list user click on one of announcements	appear to the user.		
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Test Case Work Paper – Industrial Internship Automation

Test Case ID:	Original Author:	Last Updated By:
Parent Use Case ID:	Original Date:	Last Updated On:

Test Objective: Test Administration functionalities

Item No.	Test Condition	Operator Action (Flow of Event)	Input Specification	Output Specification (Expected Result)	Pass / Fail	Comments
1.	Administrator Logs in to the system.	<ol style="list-style-type: none"> Administrator enter user name and password Administrator enter submit button 		User is directed to administration page.		
2.	Administrator upload new announcement	<ol style="list-style-type: none"> Administrator click on upload new announcement Administrator click on Upload new archive Administrator fill up form Administrator Submit form 	Date: Varchar(200) Header: Varchar(200) Brief: Varchar(200)	New Announcement will be uploaded and appear on first item		

3.	Administrator Edit announcement	<ol style="list-style-type: none"> Administrator click on upload new announcement Administrator click on Edit Administrator fill up form Administrator Submit form 	Date: Varchar(200) Header: Varchar(200) Brief: Varchar(200)	Modified announcement will be appear instead of previous one		
4.	Administrator Remove announcement	<ol style="list-style-type: none"> Administrator click on upload new announcement Administrator click on Remove 		Selected announcement will be removed		
5.	Administrator search students by name	<ol style="list-style-type: none"> Admin Click on search student Admin type part of student name Admin Click submit button 	Name: Varchar (200)	List of students which contain the name will appear.		
6	Administrator search students by Sponsor	<ol style="list-style-type: none"> Admin Click on search student Admin Choose sponsor name Admin Click submit button 		List of students under specified sponsor will appear		
7	Administrator search	<ol style="list-style-type: none"> Admin Click on search student 		List of students From specified		

	students by nationality	<ol style="list-style-type: none"> Admin Choose Nationality name Admin Click submit button 		country will appear.		
8	Administrator search students by metric	<ol style="list-style-type: none"> Admin Click on search student Admin type student Metric Admin Click submit button 	Name: Num (4)	List of student with specified metric will appear.		
9	Administrator search students by CGPA	<ol style="list-style-type: none"> Admin Click on search student Admin type student Metric Admin Click submit button 	Name: Float (5)	List of student with specified CGPA will appear.		
10	Administrator search students by Department	<ol style="list-style-type: none"> Admin Click on search student Admin Choose student department Admin Click submit button 		List of students from specified department will appear.		
11	Administrator view all students	<ol style="list-style-type: none"> Admin click on view all students 		List of all students will appear.		
12	Administrator view student	<ol style="list-style-type: none"> Admin click on view student status 		List of student with specified criterion will		

	submission status			appear		
13	Administrator view student forms and marks	<ol style="list-style-type: none"> 1. Admin click on view student marks and form 2. admin choose student from list 		Student profile will appear		
14	Administrator view student profile	<ol style="list-style-type: none"> 2. Admin search student and click on his/her name 		Student profile will appear and submitted marks and forms can be downloaded		
15	Administrator search Lecturer by name	<ol style="list-style-type: none"> 1. Admin Click on search Lecturer 2. Admin type part of Lecturer name 3. Admin Click submit button 	Name:Varchar (200)	List of Lecturers which contain the name will appear.		
16	Administrator search Lecturer by Department	<ol style="list-style-type: none"> 1. Admin Click on search Lecturer 2. Admin Choose Lecturer department 3. Admin Click submit button 		List of Lecturers from specified department will appear.		
17	Administrator view Lecturer	<ol style="list-style-type: none"> 1. Admin search lecturer and click on his/her name 		Lecturer profile will appear		

	profile					
18	Administrator view all Lecturers	<ol style="list-style-type: none"> 1. Admin click on view all Lectures 		List of all Lecturer will appear.		
19	Administrator search Companies by name	<ol style="list-style-type: none"> 1. Admin Click on search Company 2. Admin type part of Company name 3. Admin Click submit button 	Name:Varchar (200)	List of Companies which contain the name will appear.		
20	Administrator search Company by OPU/Non OPU	<ol style="list-style-type: none"> 1. Admin Click on search Company 2. Admin Choose Company OPU/non OPU 3. Admin Click submit bottom 		List of Company from specified section will appear.		
21	Administrator search Company by Industry	<ol style="list-style-type: none"> 1. Admin Click on search company 2. Admin Choose Company industry 3. Admin Click submit button 		List of Company from specified industry will appear.		
22	Administrator search Company by Country	<ol style="list-style-type: none"> 1. Admin Click on search Company 2. Admin Choose Company Country 		List of Company from specified Country will appear.		

		3. Admin Click submit button			
23	Administrator view all Company	1. Admin click on view all Company		List of all Company will appear.	
24	Administrator view Company profile	1. Admin search Company and click on name		Company profile will appear	
25	Administrator Update SIIU Staff	1. Administrator Click on update SIIU staff 2. Admin Click on add new staff 3. Admin fill up the form 4. Admin Submit the form	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200)	New staff profile will be created and appear in the list	
26	Administrator Edit SIIU staff from list	1. Administrator Click on update SIIU staff 2. Admin Click on Edit staff 3. Admin fill up the form 4. Admin Submit the form	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200)	New staff profile will be created and appear in the list	
27	Administrator	1. Administrator Click on update SIIU staff		Specified staff profile will be	

	Remove SIIU staff from list	2. Admin Click on remove		deleted		
28	Administra tor Add new Student	1. Admin Click on add new user 2. Admin click on add new student 3. Admin fill up the form 4. Admin submit the form	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) CGPA:Float(5.2) User name:Varchar(200) Password:Varchar(200)	New student account will be created.		
29	Administra tor Add new Lecturer	1. Admin Click on add new user 2. Admin click on add new Lecturer 3. Admin fill up the form 4. Admin submit the form	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) CGPA:Float(5.2) User name:Varchar(200) Password:Varchar(200)	New Lecturer account will be created.		
30	Administra tor Add new Authorizes Company	1. Admin Click on add new user 2. Admin click on add new Authorized Company 3. Admin fill up the form 4. Admin submit the form	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) User name:Varchar(200) Password:Varchar(200)	New Authorized Company account will be created.		

31	Administrator Add new Administrator	<ol style="list-style-type: none"> 1. Admin Click on add new user 2. Admin click on add new Administrator 3. Admin fill up the form 4. Admin submit the form 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) User name:Varchar(200) Password:Varchar(200)	New Administrator account will be created.	
32	Administrator Add new Plant Supervisor	<ol style="list-style-type: none"> 1. Admin Click on add new user 2. Admin click on add new Administrator 3. Admin fill up the form 4. Admin submit the form 5. Admin Choose student to under new PS supervision 6. Admin Submit the form 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) User name:Varchar(200) Password:Varchar(200)	New Planet supervisor account will be created.	

Test Case Work Paper – Industrial Internship Automation

Test Case ID:	Original Author:	Last Updated By:
Parent Use Case ID:	Original Date:	Last Updated On:

Test Objective: Test Authorized Companies Functionalities

Item No.	1. Test Condition	2. Operator Action 3. (Flow of Event)	Input Specification	Output Specification (Expected Result)	P ass/ Fail	Comments
1	Authorized Companies Logs in to the system.	<ol style="list-style-type: none"> AC enter user name and password AC click on submit button 	User name:Varchar(200) Password:Varchar(200)	AC is directed to AC page.		
2	Authorized Companies Update its profile	<ol style="list-style-type: none"> AC click on Update company profile AC fill up the form AC click on submit button 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) Password:Varchar(200)	Modified profile will be saved into the Database		
3	Authorized Companies search students by name	<ol style="list-style-type: none"> AC Click on search student AC type part of student name AC Click submit button 	Name:Varchar(200)	List of students which contain the name will appear.		

4	Authorized Companies search students by Sponsor	<ol style="list-style-type: none"> 1. AC Click on search student 2. AC Choose sponsor name 3. AC Click submit button 		List of students under specified sponsor will appear		
5	Authorized Companies search students by nationality	<ol style="list-style-type: none"> 1. AC Click on search student 2. AC Choose Nationality name 3. AC Click submit button 		List of students From specified country will appear.		
6	Authorized Companies search students by metric	<ol style="list-style-type: none"> 1. AC Click on search student 2. AC type student Metric 3. AC Click submit button 	Name: Num (4)	List of student with specified metric will appear.		
7	Authorized Companies search students by CGPA	<ol style="list-style-type: none"> 1. AC Click on search student 2. AC type student CGPA 3. AC Click submit button 	CGPA: Float (5)	List of student with specified CGPA will appear.		
8	Authorized Companies search students by	<ol style="list-style-type: none"> 1. AC Click on search student 2. AC Choose student department 		List of students from specified department will appear.		

	Department	3. AC Click submit button			
9	Authorized Companies view all students	1. AC click on view all students		List of all students will appear.	
10	Authorized Companies Send student offer letter	1. AC search student by view all or by search 2. AC click on send offer		Company's offer letter will be saved in database	
11	Authorized Company Accept Application letter	1. AC Click on view application letters 2. From list appears AC click on send offer letter		Company's offer letter will be saved inside database	
12	Authorized Company Reject Application letter	1. AC Click on view application letters 2. From list appears AC click on Reject		Student application letter will be removed from database	
13	Authorized Company Check Pending offer letters	1. AC Click on view pending offer letters		List of pending offer letter appears.	
14	Authorized Company	1. AC Click on view pending offer letters		Specified offer letter will be	

want to cancel offer letters	2. From list appeared, AC click on Cancel	removed from database.
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Test Case Work Paper – Industrial Internship Automation

Test Case ID: **Original Author:** **Last Updated By:**

Parent Use Case ID: **Original Date:** **Last Updated On:**

Test Objective: Test Student functionalities

Item No.	Test Condition	Operator Action (Flow of Event)	Input Specification	Output Specification (Expected Result)	Pass/ Fail	Comments
1	Student Logs in to the system.	<ol style="list-style-type: none"> 1. Student enter user name and password 2. Student click on submit button 	User name:Varchar(200) Password:Varchar(200)	Student is directed to Student page.		
2	Student Update its profile	<ol style="list-style-type: none"> 1. Student click on Update company profile 2. Student fill up the form 3. Student click on submit button 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) Password:Varchar(200)	Modified profile will be saved into the Database		
3		1. user click on	Size(resume)< 2MB	Chosen resume		

	Student Upload his/her resume	<ol style="list-style-type: none"> upload resume user choose the file to be uploaded. User click on submit button 		should be uploaded to the server		
4	Student search Companies by name	<ol style="list-style-type: none"> Student Click on search Company Student type part of Company name Student Click submit button 	Name:Varchar (200)	List of Companies which contain the name will appear.		
5	Student search Company by OPU/NonOPU	<ol style="list-style-type: none"> Student Click on search Company Student Choose Company OPU/non OPU Student Click submit button 		List of Company from specified section will appear.		
6	Student search Company by Industry	<ol style="list-style-type: none"> Student Click on search Company Student Choose Company industry Student Click submit button 		List of Company from specified industry will appear.		
7	Student search Company by Country	<ol style="list-style-type: none"> Student Click on search Company Student Choose Company Country 		List of Company from specified Country will appear.		

		3. Student Click submit button			
8	Student view all Company	1. Student click on view all Company		List of all Company will appear.	
9	Student Send student offer letter	1. AC search student by view all or by search 2. AC click on send offer		Company's offer letter will be saved in database	
10	Student send Application letter	1. Student search for the company 2. Student click on apply for placement		Application letter will be sent to Company	
11	Student check its pending application letters	1. Student click on check my placement status 2. Student click on view my pending applications		List of pending applications will appear to the user	
12	Student remove its pending application letters	1. Student click on check my placement status 2. Student click on view my pending applications 3. Student press on cancel button		Application letter will be removed from database	

1 3	Student check its pending offer letters	<ol style="list-style-type: none"> 1. Student click on check my placement status 2. Student click on view my pending offer letters 		List of pending offer letters will appear to the user		
1 4	Student accept its pending offer letters	<ol style="list-style-type: none"> 1. Student click on check my placement status 2. Student click on view my pending offer letters 3. Student click on accept 		Student will be enroled to specified company and his/her status will be changed		
1 5	Student submit form ITC-A	<ol style="list-style-type: none"> 1. Student click on Submit form ICT-A 2. Student fill up the form 3. Student Submit the form 	IC No: Varchar(200) Host Address: Varchar(200) Host email: Varchar(200) Host Contact: Varchar(200) SP name: Varchar(200) SP contact: Varchar(200) SP Email: Varchar(200)	Form ITC-A will be saved inside database		
1 6	Student submit	<ol style="list-style-type: none"> 1. Student click on Submit Training 	Department Section: Varchar(200)	Training schedule will be saved		

	training schedule	<p>schedule.</p> <ol style="list-style-type: none"> Student fill up the form Student Submit the form 	<p>Training Activities: Varchar(200)</p>	inside database.		
17	Student submit weekly report	<ol style="list-style-type: none"> Student click on Submit Training schedule. Student fill up the form Student Submit the form 	<p>Objective: Varchar(200) Content : Text Date: Varchar(200) Brief desc: Varchar(200)</p>	Specified weekly report will be saved inside database		
18	Student view his/her weekly reports	<ol style="list-style-type: none"> Student click on view my weekly report 		Weekly report including their marks if allocated will be appear to user		

Test Case Work Paper – Industrial Internship Automation

Test Case ID:	Original Author:	Last Updated By:
Parent Use Case ID:	Original Date:	Last Updated On:

Test Objective: Test Plant supervisor functionalities

Item No.	Test Condition	Operator Action (Flow of Event)	Input Specification	Output Specification (Expected Result)	Pass/ Fail	Comments
1	Plant Supervisor Logs in to the system.	<ol style="list-style-type: none"> Plant Supervisor enter user name and password Plant Supervisor click on submit button 	User name:Varchar(200) Password:Varchar(200)	Student is directed to Student page.		
2	Plant Supervisor Update its profile	<ol style="list-style-type: none"> Plant Supervisor click on Update company profile Plant Supervisor fill up the form Plant Supervisor click on submit button 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) Password:Varchar(200)	Modified profile will be saved into the Database		
3	Plant Supervisor	<ol style="list-style-type: none"> PS click on mark weekly report PS click on student 	Mark:Int() < 100	Specified report for specified student will be		

mark weekly report	name 3. PS click on report week number 4. PS mark the report 5. PS submit the form		marked		
4 Plant Supervisor Submit form C	1. PS click on form C. 2. PS click on student name. 3. PS fill up form 4. PS submit the form	Comment:Varchar(200)	Specified student form will be saved inside the database.		
5 Plant Supervisor Submit form D	1. PS click on form D. 2. PS click on student name. 3. PS fill up form 4. PS submit the form	Clarity: Int < 100 Visual: int < 100 F and Q : int < 100 Content: Int < 100 Total : Int < 100	Form D for specified student will be saved in database.		

Test Case Work Paper – <u>Industrial Internship Automation</u>						
Test Case ID:		Original Author:		Last Updated By:		
Parent Use Case ID:		Original Date:		Last Updated On:		
Test Objective: Test Lecturer functionalities						
Item No.	Test Condition	Operator Action (Flow of Event)	Input Specification	Output Specification (Expected Result)	Pass/Fail	Comments
1.	Lecturer Logs in to the system.	<ol style="list-style-type: none"> Lecturer enter user name and password Lecturer click on submit button 	User name:Varchar(200) Password:Varchar(200)	Student is directed to Student page.		
2.	Lecturer Update its profile	<ol style="list-style-type: none"> Lecturer click on Update company profile Lecturer fill up the form Lecturer click on submit button 	Name:Varchar(200) Contact No: Varchar(200) Email:varchar(200) Password:Varchar(200)	Modified profile will be saved into the Database		
3.	Plant Supervisor mark	<ol style="list-style-type: none"> Lecturer click on mark weekly report _ click on student name 	Mark:Int() < 100	Specified report for specified student will be marked		

	weekly report	<ol style="list-style-type: none"> 3. _ click on report week number 4. Lecturer mark the report 5. Lecturer submit the form 			
4.	Lecturer search students by name	<ol style="list-style-type: none"> 1. Lecturer Click on Student under my supervision 2. Lecturer type part of student name 3. Lecturer Click submit button 	Name:Varchar (200)	List of students which contain the name will appear.	
5.	Lecturer search students by Metric	<ol style="list-style-type: none"> 1. Lecturer Click on Student under my supervision 2. Lecturer type part of student Metric number 3. Lecturer Click submit button 	Metric:Int ()	List of students with specified criteria will appear.	
6.	Lecturer Add student to his/her supervision	<ol style="list-style-type: none"> 1. Lecturer Click on Student under my supervision 2. Lecturer search student 3. Lecturer add student 		Specified student will be added under this lecturer supervision	

7.	Lecturer Submit form D	<ol style="list-style-type: none"> 1. Lecturer click on form D. 2. Lecturer click on student name. 3. Lecturer fill up form 4. Lecturer submit the form 	<p>Clarity: Int < 100</p> <p>Visual: int < 100</p> <p>F and Q : int < 100</p> <p>Content: Int < 100</p> <p>Total : Int < 100</p>	Form D for specified student will be saved in database.		
8.	Lecturer Submit final grade	<ol style="list-style-type: none"> 1. Lecturer click on Submit final grade 2. Lecture fill up the form 3. Lecturer submit the form 	Grade: Int < 100	Final grade will be submitted and student status will be changed.		