IMPLEMENTATION OF
SAP STUDENT MANAGEMENT SYSTEM
(SMS) AT UNIVERSITI TEKNOLOGI
PETRONAS
MALAYSIA

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Agenda

- Objectives
- Background
- SAP - Student Management System
- Implementation Experience
- Campus Mgmt Gap Assessment Study
- Moving Forward
Objectives
The objectives of this presentation are to:

• *Share system functionalities and implementation experience* with the Higher Education and Research (HER) User Group Members; and

• *Propose to include important SMS functionalities* in Campus Management.
Background
Introduction to PETRONAS

- PETRONAS, is an acronym to Petroleum Nasional Berhad, Malaysia

- It was incorporated on 17 August 1974

- PETRONAS is vested with the entire oil & gas resources in Malaysia and responsible to develop and add value to these resources

- It has operations in more than 20 countries around the world and owns over 100 subsidiaries and associated company. PETRONAS is also ranked number 51 in 1999 for profit among the Fortune Global 500 companies.

- PETRONAS other businesses include:
  - Oil Refining
  - Natural Gas Processing
  - Natural Gas liquefaction
  - Marketing of Fertilisers and Petrochemicals
  - Education
PETRONAS Education Business Division comprise of five Education Sponsorship Units (ESU) including:

- Universiti Teknologi PETRONAS (UTP)
- PETRONAS M’MENT TRAINING (PERMATA)
- Education Sponsorship Unit (ESU)
- PETRONAS TECH. PETROLEUM INSTITUTE (INSTEP)
- MALAYSIAN MARITIME ACADEMY (ALAM)
PETRONAS utilises SAP as its Group Common System. SMS is a customised HR to manage UTP students’ information.
Introduction to
Universiti Teknologi PETRONAS (UTP)
In line with its aspiration to share its knowledge and to support the nation education development, PETRONAS has established its own university known as UNIVERSITI TEKNOLOGI PETRONAS.

**What is UTP’s Vision?**

A Leader in Technology Education

AND

Centre for Creativity and Innovation

**What are the Mission Statements?**

- UTP is an institute of higher learning. We provide opportunities for the pursuit of knowledge and expertise for the advancement of engineering, science and technology to enhance the nation’s competitiveness.

- Our objective is to produce well-rounded graduates who are creative and innovative with potential to become leaders of industry and the nation.

- Our aim is to nurture creativity and innovation and expand the frontiers of technology and education for the betterment of society.
1995
JULY
Start operations.

1996
JULY
Relocate to New Campus

1997
JAN
Invited by Ministry of Education to set up a university
AUG
Approved by Ministry of Education to run degree programs

1998
JULY
Expert Panel Workshop held to review programs and curriculum

1999
FEB
Visit by Board of Engineers Malaysia
AUG
Chemical & Electrical & Electronics Eng. accredited by National Accreditation Board
OCT
IT & Mech Eng. accredited by National Accreditation Board

2000
NOV
First IT Graduates

2001
MAY
First Engineering Graduates
AUG
Inaugural Convocation
UNIVERSITI TEKNOLOGI PETRONAS offers a wide range of Engineering and Information Technology programmes for both Under Graduate and Post Graduate students.

UNDERGRADUATES

- Electrical & Electronics Engineering
- Chemical Engineering
- Mechanical Engineering
- Civil Engineering
- Information Technology
- Information System

Specialization

- Instrumentation & Control
- Process Environment Petrochemicals
- Mechatronics Manufacturing Materials Petroleum Automotive
- Urban Management Building Technology

Minors / Elective Courses

- Financial Management
- Corporate Management

POST GRADUATE (MSC & PHD) - BY RESEARCH FOR THE ABOVE PROGRAMMES
SAP - Student Management System
SMS System Architecture

Admission Module

Financial Module

Academic Module

Graduation Module

Future Integration

Library System

Students Accomm.

Application Software SAP 3.1H version

Op. System - Oracle version 7.3.4.3.0 / Unix Solaris version 5.5.1

Hardware - Sun Machine
Component of SAP applications in SMS

- Financial Module
- Examination Module
- Self Developed

- AR
- ABAP REPORTS
- FI
- HR

STUDENT MANAGEMENT SYSTEM
In 1996 when UTP moved to current campus, the need for an integrated education management system was urgent.

Production began in 1997 with several enhancements. Currently SMS has moved into its second enhancements which focus on academic and student services modules.

PETRONAS SAP Business Support and UTP conducted structured approach in the design of SMS.

Started as a management driven project. In 1999, the users have taken an active role in turning this project into a user-driven project.
SMS core Modules comprise of

**TYPICAL STUDENT LIFECYCLE**

- **Students Admission**
  - Application Processing
  - Application Evaluation
  - Status Correspondence

- **Students Finance**
  - Manage Fees
  - Manage Billing
  - Manage Payment
  - Manage Collections

- **Students Records**
  - Academic Structure
  - Student Registration
  - Examination
  - Student Progress

- **Graduation Module**
  - Graduation Status
  - Transcripts

With future integration:

**Library Systems**
**Students' Accommodation**
**Web enable application**
Admission Module Process Flow

Marketing & Advertisement
- Promotions, Roadshows
- Prospecting
- Nationwide advertisement

Interview
- Qualified candidates selected
- Concurrent interview sessions Nationwide
- Successful/ unsuccessful candidates notified

Ranking
- Successful candidates ranked according to score
- Ranking based on entry exam results
- Ranking to facilitate selection

Selection
- Selection based on ranking
- The highest ranked candidates selected
- Successful/ unsuccessful candidates notified

Generate Student ID
- Generate Matrix # for students
- Registration payment linked to Financial module
- Generate list of students names for course registration

Manual

SMS
Financial Module Process Flow

- **Manage Fees**
  - Creation of Customer No.
  - Charges are posted to respective customers' account
  - Manage sponsor and students accounts.

- **Manage Billing**
  - Invoices are issued to respective customers
  - Report students by sponsors is generated
  - Income captured

- **Manage Payment**
  - Cost of Living Allowances is disbursed via cheque or TT Transfer
  - Refund of caution money

- **Manage Collection**
  - Payment received posted to respective customers’ account
  - Issue receipts as proof of payment
  - Generate Ageing Report to track overdue accounts

**SMS Functionalities**

**Financial Module**
Student Records Module Process Flow

Academic Structure
- Set up Academic structure
- Determine courses offered
  - Lecturers
  - Pre-requisites
- Maintain tables
- Pre-determine grading scale
- Prepare schedule

Course Registration
- On-line course registration
- Registration by batch/individually
- Determine students’ fees
- Generate class list
- Final class schedule generated

Student Progress
- Monitor student progress
- Continuous assessment
- Monitor student’s attendance
- Capture student’s monthly/weekly test

Examination
- Generate Exam ID
- Capture exam marks
- Generate results report
- Calculate Grade Point Average

Results
- Produce students’ results slips
- Results announced through web

SMS Functionalities
Academic Module

Manual

SMS
Graduation Module Process

- **Graduates Status lists**
  - Status of students who are eligible to graduate
  - Credit fulfilled
  - Credit yet to be taken
  - Credit exempted

- **Graduation Report**
  - Report on students eligible to graduate
  - Based on program

- **Transcripts**
  - Transcripts generated for eligible students

- **Scroll**
  - Scroll produced based on students' graduation status
  - E.g. First Class, Second Class etc

- **Alumni**
  - Keeps records on UTP Alumni
  - Database on students Graduation list and list of employers

SMS Functionalities
Students Services Module

Manual

SMS
Implementation
Experience
Implementation Experience

The following are some of the experience and lessons learnt during the implementation of SMS:

• Efforts were carried out to customise the Human Resource (HR) and Account Receivable (AR) module to suit UTP business requirements.

• System enhancement had to be carried out from time to time to further improve the functionalities and also to cater for new business requirements.

• Challenges in transferring the knowledge from one person to another.

• Dedicated IT support is critical to ensure the smooth running of the system.
Campus Management Gap Assessment Study
Education Management System Project was to identify a system that can best cater for all Education Units needs.
<table>
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<tr>
<th>SAP CM</th>
<th>Syllabus Plus</th>
<th>Lotus</th>
<th>Smart Card</th>
<th>NA</th>
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**Education Management System (EMaS) Project**

**Campus Management Gap Assessment Study**

**Web Applications**
- Online Application
- Time Table
- Exam Time Table
- Exam Result
- Sponsor Fin Statement
- Online Payments (Fees)
- Student Fin Statement
- Resource Request/Availability
- Housing Request
- Events Marketing/Registration
- Financial Assistance Application

**Core Business Function Applications**
- Prospecting
- Course Catalog/ Academic Structure
- OJT Management (Eval / Appl / Logbook)
- Research Management
- Manage Fee Collections
- Housing & Accommodation
- Advising Management
- Class Room Scheduling
- Resource/Facility Management
- Events Management

**Student Admission**
- OJT Application and Logbook
- Class Enrolment/ Roster
- Research Publication
- Exam Result
- Sponsor Fin Statement

**Student Records**
- Online Transcript
- Graduation Auditing
- Alumni (Members Particular Management)
- Online Payments (Fees)
- Student Fin Statement

**Student Financials**
- Manage Fee Collections
- Student Fin Statement

**Student Services**
- Housing & Accommodation
- Advising Management
- Class Room Scheduling
- Resource/Facility Management
- Events Management

**Events Management**
- Online Application
- Time Table
- Exam Time Table
- Exam Result
- Sponsor Fin Statement
- Online Payments (Fees)
- Student Fin Statement

**Prospecting**
- Application Evaluation (Program)
- Course Catalog/ Academic Structure
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**Scheduling & Time Tabling**
- Examination
- Class Progress Management
- Scheduling Time Tabling
- Graduation Management
- Billing Payments

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- Class Progress Management
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- Graduation Management
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The SMS Examination module offers a complete examination module to cater for UTP business requirements.
Development Request on gaps identified which will be submitted:-

- Examination module