<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>IVLE: Integrated Virtual Learning Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Sun, S</td>
</tr>
<tr>
<td><strong>Citation</strong></td>
<td>CITE Seminar Series 08 (The E-Learning Solution: IVLE (Integrated Virtual Learning Environment))</td>
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<tr>
<td><strong>Issued Date</strong></td>
<td>2001</td>
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<td><strong>Rights</strong></td>
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</tr>
</tbody>
</table>
Integrated Virtual Learning Environment

Sun Jinlie
Email: citsunjl@nus.edu.sg
Systems Engineer

Centre for Instructional Technology
National University of Singapore
Background

✧ NUS Stance

Information Technology continues to be an enabler/facilitator to improve teaching and learning processes, primarily in the context of an on-campus education scenario.

✧ Objectives

Support and supplement courses in all major academic areas

- Not to replace ‘traditional’ lectures
- Alternatives avenues for peer-peer interaction and communication
- Promote independent learning and reduce administrative teaching load
- Suit university size, institutional culture and integrate with existing network, student admin. and legacy systems
Background

- Started with launch of NUS IT Strategic Plan in early 1998 for the need for an excellent IT infrastructure to support teaching and learning

- Systems at that time were unable to meet all of the desired criteria. Lack of suitable off-the-shelf solution lead to an in-house developed platform, thus the birth of IVLE

- Project started in June 1998 with delivery of IVLE Version 1.0 in Nov 1998 and **Version 5.0** in Dec 2000

- Developed by Centre for Instructional Technology

http://ivle.nus.edu.sg
Milestones

- Accored the E-nnovator’s Award, 2000 (Open Category)
- Showcased at Comdex USA, 2000

http://ivle.nus.edu.sg
What is IVLE?

- An enterprise wide Integrated Virtual Learning Environment
- An E-learning management system that supports Staff-Student and Student-Student interaction
- Enables collaborative teaching and learning over the Internet through a rich set of easy-to-use tools

http://ivle.nus.edu.sg
How does IVLE work?

http://ivle.nus.edu.sg
Key Features

- 100% web-based courseware management
- Dual mode support
  - Staff mode
  - Student mode
- Single sign-on
- Supports both asynchronous & synchronous T&L
- Web-based and designed to meet diverse T&L pedagogical styles. New components can be added as needed
- Multilingual Support
- Web access statistics analysis

http://ivle.nus.edu.sg
Key Features

Search → Course Outline → Personalized Staff/Student Workspace

Tools:
- Announcement
- Chat room
- Calendar
- FAQ Builder
- Discussion Forum
- Lesson Plan
- Media Channel
- Quiz
- Workbin

Info:
- Personal Profile
- My Bookmarks
- Class Roster
- Tracking
- Statistics
- Subscription
- Feedback

http://ivle.nus.edu.sg
Course Outline

THE EMERGENCE OF CONTEMPORARY SOUTH ASIA

Template 1

Course: SN1101 - THE EMERGENCE OF CONTEMPORARY SOUTH ASIA
Lecturer(s): Dr. Suresh, Suvarna
Department: South Asian Studies Programme
Course Website: http://courses.nus.edu.sg/course/sasgr/SN1101/index.htm

Schedule

Lectures on Monday 1400-1600 Venue: AS7 01-06

Synopsis

This module aims at providing students with an understanding of the historical and political developments that have shaped contemporary South Asia. It focuses on the legacy of colonial rule and the political and economic challenges faced by the countries of South Asia.

How Is Body Fluid Compartmentalised and Filtered at the Kidney?

Professor Peter L.H. Hwang

Objectives

- To describe the fluid compartments of the body and explain how they relate to one another.

References

Discussion Forum

Controls/features include:

- Forum start and end dates controlled by lecturer
- Controlled access to forum via:
  - Groups: Users in a specific group
  - Class: Registered students in your class
  - Managers: Users with admin privileges
- Option to display either poster's real or nickname
- Threaded posting/reply with attachment
- Notification of new postings by e-mail
- Forum/Message search
- Forum statistics / User Guidelines

http://ivle.nus.edu.sg
Quiz

[Image of IVLE Quiz interface]

Quiz Source:
- New Question
- Existing Question in My Question Bank
  *All new questions created will be saved to My Question Bank automatically.

Question Type:
- Select the type of question you want to create.
  *To make use of the Survey feature found in Results, all questions in your quiz MUST be Multiple Choice questions.

[Options for question types: Multiple Choice, Multiple Response, True or False, Select List, Fill in the Blank, Text Field, Essay]

[Quiz settings form]
- Course Code: IT1000
- Quiz Title: Revision 1
- Description: Text
- Perfect Score: 10
- Open Date: 10 Dec 2000 12 PM
- Close Date: 25 Dec 2000 11 PM

[Preview button]
Workbin features include:
- Workbin open and close date controlled by lecturer
- Restricted access to workbin via:
  i. Groups – Users in a specific group
  ii. Class – Registered students in your class
  iii. Managers – Users with admin privileges
- Limit uploaded file size
- Set up new directories within a workbin
- Notification of new file uploaded
- Workbin upload/download statistics

A file repository where both staff and student can upload or download files
### Class Roster: AS3217

<table>
<thead>
<tr>
<th>Name</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANG SOCK HONG</td>
<td><a href="mailto:fba70312@nus.edu.sg">fba70312@nus.edu.sg</a></td>
</tr>
<tr>
<td>BEH SHU-SIENN, TARA</td>
<td><a href="mailto:snmha@pacific.net.sg">snmha@pacific.net.sg</a></td>
</tr>
<tr>
<td>CHENG CHYE HSERN</td>
<td><a href="mailto:get_lost@pacific.net.sg">get_lost@pacific.net.sg</a></td>
</tr>
<tr>
<td>CHOO HUEI MIIN</td>
<td><a href="mailto:fba70340@nus.edu.sg">fba70340@nus.edu.sg</a></td>
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<tr>
<td>CHUA PEI PEI</td>
<td><a href="mailto:fba70209@nus.edu.sg">fba70209@nus.edu.sg</a></td>
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</tr>
<tr>
<td>KELVIN LAWRENCE</td>
<td><a href="mailto:art00014@nus.edu.sg">art00014@nus.edu.sg</a></td>
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<td>ZHENESSE S. HEINEMANN</td>
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<tr>
<td>CHAN MANN HAR, JEANNIE</td>
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<td>CHEW SHU WEN, CINDY</td>
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<tr>
<td>CHU YEE MING</td>
<td><a href="mailto:calvinchui@pacific.net.sg">calvinchui@pacific.net.sg</a></td>
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<td>DEEPA D/O MOHANAN</td>
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<tr>
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<tr>
<td>LEE MEIYU, CHARLENE</td>
<td><a href="mailto:liquid_poison@mail.com">liquid_poison@mail.com</a></td>
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<tr>
<td>LIM BOON CHONG</td>
<td><a href="mailto:fba70111@nus.edu.sg">fba70111@nus.edu.sg</a></td>
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21 student(s)
## Course Tracking Report

Report Range: 04/01/2001 - 07/03/2001

### Users Who Bookmarked This Course

<table>
<thead>
<tr>
<th>User-ID</th>
<th>Name</th>
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<td>NG SU CHING</td>
<td>04/02/2000</td>
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<td>17/01/2001</td>
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<td>ART90145</td>
<td>LIM JOO LIN, JULIAN</td>
<td>11/01/2000</td>
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<td>CITLEWKH</td>
<td>LEW KOK HOE</td>
<td>18/01/2001</td>
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<td>TIU AI KI@DAPHNE TIU</td>
<td>11/01/2001</td>
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<tr>
<td>HISGKC</td>
<td>CLANCEY, GREGORY KEVIN</td>
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### Top Authenticated Visitors (NUS Staff and Students)

<table>
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<td>TANDRAYEN ANNE AUDREY GERALDINE</td>
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<td>ART80441</td>
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<tr>
<td>ART07362</td>
<td>ZHENESSE S. HEINEMANN</td>
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<tr>
<td>ART00743</td>
<td>SEAHE KANGLIN, DIANA</td>
<td>17</td>
</tr>
</tbody>
</table>

[http://ivle.nus.edu.sg](http://ivle.nus.edu.sg)
Advanced PKI & ECC

- **Public Key Certificate**
  - A user’s electronic ID

- **Conventional PKI**
  - RSA based issuing/managing
  - X.509 based certificates
  - Typical end entity certificates > 800 bytes, even larger for CA certificates
  - No problem in desktop environment but not suitable for hand-held devices, e.g., mobile phone, PDA, etc.
<table>
<thead>
<tr>
<th>TIME</th>
<th>EVENT</th>
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</thead>
<tbody>
<tr>
<td>6.00 AM</td>
<td>BBC News</td>
</tr>
<tr>
<td>6.30 AM</td>
<td>Holiday Guide To.. (R)</td>
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<tr>
<td>7.00 AM</td>
<td>BBC News</td>
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<tr>
<td>7.30 AM</td>
<td>Correspondent (R)</td>
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<td>8.00 AM</td>
<td>BBC News</td>
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<tr>
<td>8.30 AM</td>
<td>Simpson Bs World (R)</td>
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<tr>
<td>9.00 AM</td>
<td>BBC News</td>
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<td>9.30 AM</td>
<td>Hardtalk (R)</td>
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<td>10.00 AM</td>
<td>BBC News</td>
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<tr>
<td>10.30 AM</td>
<td>This Week (R)</td>
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<td>11.00 AM</td>
<td>BBC World News</td>
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<tr>
<td>11.30 AM</td>
<td>India Business Report</td>
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<tr>
<td>12.00 PM</td>
<td>BBC World News</td>
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http://ivle.nus.edu.sg
80% of the courses in NUS have an IVLE presence
Learning Management Systems

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<th>Curriculum Development</th>
<th>Content Development</th>
<th>Learner Acquisition &amp; Support</th>
<th>Learning Delivery</th>
<th>Assessment &amp; Advising</th>
<th>Articulation</th>
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<tbody>
<tr>
<td>Training Companies (e.g., SmartForce, Asymetrix Learning Systems, Digital Think, Netg)</td>
<td>Content Conversion and Distribution (e.g. UNext.com, Pensare, University Access, Caliber, Worldwide Learning)</td>
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<tr>
<td>Market Research Firms</td>
<td>Content Conversion and Hosting Services (e.g., eCollege.com, Convene, Embanet, Jones International)</td>
<td>Learning Management Systems (e.g., WebCT, Blackboard, IVLE, WBT Systems, Lotus LearningSpace, IntraLearn, ORACLE, Microsoft)</td>
<td>Testing Organizations (e.g. ETS)</td>
<td>Tutoring and Testing Centers (e.g., Sylvan, Kaplan)</td>
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<tr>
<td>Educational Publishers (e.g. Harcourt)</td>
<td>Learning Portals (e.g. click2Learn, SmartPlanet, Blackboard.com, Hungry Minds.com, ICDL)</td>
<td>Student Services (e.g. eCollegeBid, Campus Pipeline, MyBytes, Jenzabar, eStudentLoan)</td>
<td>Advising and Tutoring (e.g. Smarthinking.com, lifelonglearning.com)</td>
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</tr>
<tr>
<td></td>
<td>Online Applications (e.g. XAP, EMBARK, College Board.com, CollegeNet, others)</td>
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</tbody>
</table>

The Integrated Virtual Learning Environment (IVLE), launched in June 1998, is developed by Centre for Instructional Technology, National University of Singapore. IVLE is part of the NUS Global Campus Initiative to facilitate the use of Information Technology in teaching and learning.

IVLE is a learning management system designed to manage and support training and education over the Internet. It has a compilation of tools that allow teacher-student communication and collaboration in a virtual learning environment. We wish to share this progress in instructional technology with other institutions that would be interested for a similar application. As such, the project, Open IVLE is developed.
System Requirement

- **Hardware**
  - Pentium II 300 CPU
  - 128MB Memory
  - 100 MB Disk Space

- **Software**
  - Windows 2000 Server or NT Server 4.0
  - IIS 4.0 + (free with NT Option Pack and windows 2000)
  - MS SQLServer 7.0
  - SoftArtisans SA-FileUp (commercial, US$100)

- IVLE 4.0 Source Code & Installation Scripts
  (free under OpenIVLE Licence)
IVLE

Demonstration

http://ivle.nus.edu.sg
Thank you for your attention

http://ivle.nus.edu.sg