TU Library offers network access to many of its services either via the Internet or through the NTU Intranet. The primary starting point for access to these services is the Library’s Web Site http://www.ntu.edu.sg/library. This site provides comprehensive details of the services available, the different methods of access, and names as well as email addresses of important contact persons or departments which students can refer to when they require assistance.

**How to Access**

Students may access a variety of library services from wherever they are as long as they have a connection to the Internet and a web browser like Netscape or Internet Explorer. To access services offered through NTU’s Intranet, students must dial-in to NTU using the NTU Remote Access Service offered by the Computer Centre http://www.ntu.edu.sg/cc/.

**OPAC & Loans**

To search NTU Library’s Web OPAC (Online Public Access Catalogue), students should go to this Web Page http://www.ntu.edu.sg/library/opacs.html. From this page, students may also place an online reservation for books, check on their library accounts where there are options for them to cancel books they have reserved or renew books that they have loaned out, or check the OPACs of other libraries either here in Singapore or overseas. For an extensive listing of audio-visual materials available in the library, students should visit the Web Page of the Library’s Media Dept http://www.ntu.edu.sg/library/m-media.htm and browse through their collection highlights page http://www.ntu.edu.sg/library/media/ncmpn.htm.
Aim: The Bulletin is to keep members informed of library matters concerning policies, procedures, resources, new services and facilities, as well as user feedback.

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New Acquisitions

Students may also browse listings of new acquisitions by the Library at this Web Page http://www.ntu.edu.sg/library/biblio/sambook.htm. These are listings of new books or audio-visual materials recently added to the Library collection.

Book Recommendations

To help enrich the library book collection, students are encouraged to recommend new titles not available in the collection for acquisition. When submitting such recommendations, students should include their full names and matriculation numbers so that they can be notified when the books arrive. Book recommendations may be submitted by email to resource1@ntu.edu.sg for engineering and applied science titles; resource2@ntu.edu.sg for accountancy, business and communication studies titles; and to acquisition@ntu.edu.sg or circulation@ntu.edu.sg for all other titles.

Enquiries

For reference enquiries relating to engineering or applied science subjects, students can email to resource1@ntu.edu.sg. Reference enquiries which are related to accountancy, business and communication studies should be emailed to resource2@ntu.edu.sg. However, if they have enquiries which relate to their library accounts, loan privileges, book reservations and renewals, they should then email to circulation@ntu.edu.sg.

Database Access

Students may now access a host of online and CD-ROM databases from the Library Web Site. These databases are accessed either via the Internet, the NTU Intranet or the NTU Library CD-server. For a full description of the databases available and instructions on how to access them, please go to these Web pages: http://www.ntu.edu.sg/library/cdlib2.htm for accountancy, business and communication studies related databases or http://www.ntu.edu.sg/library/lc/engrcoll.htm for engineering and applied science subject databases.

What’s Coming

In addition to all these networked access to library services, students can look forward to a more extensive range of services to be offered by NTU Library in the near future. These may include placing of inter-library loan and document procurement requests online, accessing the digitized library of NTU’s examination papers via the NTU Intranet, browsing through the complete recommended reading lists of all Schools and an exciting new service of video on demand. Students are advised to continually keep a look-out for NTU Library’s announcements of new services.
EMERALD, the Electronic Management Research Library, is now accessible on the NTU CD-ROM network. It covers the following subjects - marketing, human resources, quality management, information management, library & information services, training & education, general management, property, and operations, production & economics. It covers the period 1989 to 1994. Articles from 1994 issues are provided in full. Those from 1989 to 1993 are provided with abstracts and keywords only.

To access the NTU CD-ROM network, click your Win95 Start button and run \libsvr\cdrom\cdlib. To access Emerald, select this title listed in the dialog box and click the Run button.

You will see this screen once you have accessed Emerald.

**Search**

There are 2 search modes: basic and advanced search. In the advanced search mode, Boolean operators and search fields are available. The search fields are full text, author, article title, keyword, publication year, journal title and quality indicator.

**Contents**

Select a particular subject area and the list of journals in that subject area will be displayed. Double click on the title you are interested in. A list of the issues of the journal will be listed. A drawback is that the issues are not in complete chronological order e.g. vol. 6 no.1, 2, 3, then vol. 5 no.1, 2, 3 and so on. Select the issue you would like to browse. The contents of the issue would be displayed. Highlight the article you are interested in and click the Document button on top of the screen to view it.

**Browsing**

You may also search by clicking the Browse button. There are many indexes for selection. They are author, article title, keyword, publication year, journal, article type and quality indicator. (Please note that keyword is the subject heading assigned to the record.) Select the index you would like to browse and type your search term in the box provided. Click on the term in the index list.

**Saving**

Page image can only be printed, not downloaded. However, you may save the full text. Graphics may be selected from the page image, copied and downloaded too. To select graphics for downloading, click Select Graphics at the Tools button. Please note that only 1994 articles are available in full.
SEMINAR ON

CHINESE INFORMATION PROCESSING IN LIBRARIES

Puah Boon Nia  bnpuah@ntu.edu.sg

More than 200 librarians attended the Seminar which was held at the Hong Kong University of Science and Technology (HKUST) on 22 & 23 January 1998.

Professor Ching-Chun Hsieh from Academia Sinica, Taiwan was the keynote speaker. Other panelists were from OCLC, major universities and institutions from China, such as Tsinghua and Peking University, and the Institute of Software, Chinese Academy of Sciences, and hardware and software vendors, such as Innovative, JOIN, and WinMass.

There were altogether 4 plenary sessions. The topics discussed were Chinese character sets, Chinese enabling software, access and retrieval, library systems.

Chinese Character Sets

Ho Lapyiu of EPRO Systems (HK) Ltd., Hong Kong, gave a quick review of the various Chinese Encoding Systems, their features and limitations. Codings from ASCII and EBCDIC to BIG5, GB, GBK, UNICODE and ISO 10646 were discussed together with possible migration paths for the near future.

Sun Yufang from Institute of Software, Chinese Academy of Sciences, presented a joint paper on “The Design and Implementation of Chinese, Japanese & Korean (CJK) Unified Character Set on UNIX Systems”. The importance of internationalization (I18N) and localization (L10N) on computer software was emphasised and the architecture of I18N and L10N on open systems shown.

Victor Cheng of Center of Computing Services & Telecommunications, HKUST, presented a paper on “Implementation of Chinese Processing Systems in a Multi-platform Environment.” He demonstrated how an in-house customized character set can be supported on different platforms. Problems about font display, input and printing on the various platforms were also discussed.

Chinese Enabling Software

Wang Chaoyang from Beijing Zhong Yi Electronics Co., presented a paper on “An Introduction to Whole Hanzi Bridge, a System of Scanning Inside codes of GBK and BIG5.” He introduced a software developed by his company called All Hans Bridge (BIG5-WK) that can process the ISO CJK 20,902 Big Font, convert between simplified and traditional characters, and convert between GBK and BIG5.
“Multilingual Library Era” was presented by Chong Chiah Jen of Star & Globe Technologies Pte Ltd., Singapore. Language requirements for library systems were stated and the future of multilingual library support explored. WinMASS (the Multilingual Application Support Service on Windows) was introduced with the focus on its support for library systems, especially its East American Chinese Code (EACC) support.

Access and Retrieval

“Chinese Information Access and Retrieval: Issues Facing Libraries” was presented by Lam Ki Tat of the Hong Kong University of Science & Technology Library. The processing of Chinese information had been very problematic in the past few decades. This was due to the fact that computer hardware, communication protocols, operating system software and application software developed so far were basically “English” oriented. This presentation summarized those practical issues that libraries encounter when processing information in Chinese, with particular emphasis on the areas of access and retrieval.

“The Application of the NLP Chinese Information Retrieval” was presented by Du Lin from the Institute of Software, Chinese Academy of Sciences. He introduced the main issues in the localization of the Verity search engine for Chinese text retrieval.

Andrew H. Wang, Director of OCLC Asia Pacific Service, talked on his “11 Years of Experience Promoting Shared Cataloging and Resource Sharing of Chinese Materials in OCLC”. The sharing of Chinese bibliographic records among libraries in Asia and those in the United States was a complex task as the records created in Asia and those created in the United States were not compatible. His paper explained the specifications of the OCLC CJK records, and listed nine issues that separated the East from the West in terms of shared Chinese bibliographic records. The nine issues were: cataloging rules, name and subject authorities, romanization, subject headings, classification scheme, MARC format, character set, internal code, and nationalism.

Xie Qinfang from the Peking University Library, China, introduced “The Union Cataloguing Project of CALIS (China Academic Library and Information System)”. This was the first joint database being developed by the member libraries of CALIS to provide coalition in the creation and sharing of network bibliographic resources in higher education institutions in China, and online interlibrary loan and document delivery based on the Union Cataloguing System.

Library Systems

Professor An Shulan of Tsinghua University Library, China, presented her paper on “Chinese Code and Chinese Information Search”. The current Chinese Coding Sets in use only represented the morphologic information of Chinese characters, but did not consider the meaning and pronunciation information. The problem of information retrieval cannot be simply resolved by deciding to use a particular character set. Based on the statistics of simplified, traditional, normal, and abnormal Chinese fonts, an experimental method of Chinese character retrieval was brought up in this paper and some preparatory research work for implementation was also included.

James Loh of Dynix Taiwan and Stephen Silberstein of Innovative Interfaces Inc. USA spoke about their experiences with CJK implementation.

The Seminar provided an opportunity to an invaluable exchange of ideas on the problems and difficulties each participant had in the handling and retrieval of Chinese information. In addition to many quality papers presented by researchers, vendors and librarians in the field, the panel sessions also generated a good deal of useful discussion. In the end, the participants passed a resolution calling for a letter to be sent to OCLC Online Computer Library Center and to the Library of Congress, expressing their conclusions and the directions they wished to pursue.

Abstracts and presentation slides of the Seminar are available at http://library.ust.hk/scip98/
Cataloguing Homepage on the Internet

Have you ever wondered what goes on behind the scene in the Library? Well, here’s your chance to find out what happens in the Cataloguing Department! With our newly-launched Homepage, you can have first-hand information on how we catalogue books and link the records to the OPAC system. At the same time, you will know where to go when you are looking for books being processed in the Cataloguing Department.

This Homepage also contains our departmental policies, and provides training instructions and cataloguing manuals for new staff. Staff activities and on-going projects are featured too. For fellow cataloguers, check out the section on “Useful Links for Cataloguers” which includes on-line tools and internet resources.

So, visit our Homepage at http://www.ntu.edu.sg/library/cataloging/.

New Book Deposits

Members may now return library books at Car Park A via the Book Deposits. Two new Deposits, located outside the School of MPE, have been installed and members may return Library 1 books in Book Deposit 1 and Library 2 books in Deposit 2.

The Book Deposit at Library 2 has been re-located and is now placed at the entrance of the library. Library 1 Book Deposit has also been changed and now has a pull-down opening.

Please note that

➢ Reserve (red-spot) and yellow-spot books must not be returned via the Deposit.
➢ Book Deposits are cleared once a day at 8.30 am.

Improved Self-Checks

The self-check machines have been upgraded and the magnetic stripe card readers replaced. This upgrading will shorten processing time, result in a high increase in magnetic stripe card reader acceptance rate and allow book accession number to be printed on date due receipt.

While changes in loan procedures are minimal, users should note the following:

➢ Do not leave your card in the magnetic stripe card reader after it has been read.
➢ Remember to press the “#” key to end your transaction and before you leave the self-check unit.
The main accounting body in Indonesia is the Indonesian Institute of Accountants (IAI). Indonesian Accountancy Development Foundation (Yayasan Pengembangan Ilmu Akuntansi Indonesia), which was established in 1974 under the auspices of the IAI, steers the development of the accounting profession towards the needs of the private sector as well as the Indonesian community. It works towards its objective by providing training programmes and research related to Indonesia’s accounting system.

Financial reporting requirements are set by government agencies responsible for regulating specific sectors and industries. These government agencies are:

1. Bank Indonesia,
2. Bapepam,
3. Directorate General of Taxation, and

Indonesian Institute of Accountants (IAI)

IAI (Ikatan Akuntan Indonesia) was founded in 1957. Although the IAI is not an appointed licensing body of accountants in Indonesia, it plays an important part in building up Indonesia’s financial accounting framework and setting the accounting standards.
IAI prepared the Indonesian Accounting Principles (Prinsip Akuntansi Indonesia) which became the cornerstone of the generally accepted accounting principles in Indonesia. Apart from that, the organisation also issues statements of accounting standards on particular topics of relevance to the Indonesian practitioners.

All the publications by IAI and other relevant information can be found in the organisation’s Homepage: http://www.akutan.org - text in Bahasa Indonesia.

➢ **Bank Indonesia**

It administers the country’s monetary policies and prescribes financial reporting requirements for all banks and financial institutions operating in Indonesia.

Bank Indonesia publishes the following:

- Annual report / Bank Bumi Daya (Indonesia). [r HD2320.B218bb]
- The Development of state commercial banks in Indonesia / Jakarta, Indonesia : Bank Bumi Daya. [r HG3304.D489]
- Economic and financial statistics of Indonesia / Jakarta : Bank Bumi Daya, Research and Development Division. [r HC447.5.E19]
- Economic review / Bank Bumi Daya. [p HG1505.B218]
- Kinerja bank-bank umum persero di Indonesia = The performance of persero commercial banks in Indonesia / Bank Bumi Daya. [r HG3304.K51]
- Perkembangan bank-bank devisa di Indonesia = The development of foreign exchange banks in Indonesia. [r HG3975.P447]
- Perbankan di Indonesia = Banking in Indonesia / [Jakarta] : Bank Bumi Daya. [HG1255.P427]
- Report for the financial year. [r HC446.B218].

For more information on this organisation, please refer to : http://www.bi.go.id/ - text in Bahasa Indonesia.
Bapepam

This body acts as the overall securities regulator of the stock market in Indonesia. Together with the privately operated Jakarta Stock Exchange and Surabaya Stock Exchange, Bapepam specifies the reporting requirements of domestic companies raising finance through the public issuance of shares and provides special guidelines on financial reporting for companies listed in the stock exchange.

Directorate General of Taxation

This agency is responsible for administering tax laws. It prescribes the books of accounts and financial statements required of all corporate taxpayers.

Ministry of Finance

It administers the Accountancy Law and is involved in overseeing activities of the Directorate General of Taxation and the securities market regulator, Bapepam.

PHILIPPINES

Accounting standards in the Philippines are largely determined by the influential private sector. Standards issued by

1. Philippines Institute of Certified Public Accountants
2. Accounting Standards Council
3. Board of Accountancy and
4. Philippines Securities and Exchange Commission

are normally supported by a number of government or quasi-government bodies.

Philippine Institute of Certified Public Accountants (PICPA)

PICPA was formed in 1929 and recognised in 1975 by the Professional Regulations Commission (PRC) as an official body represented by members in the public practice, industry, government and education sectors in Philippines.

Before the formation of the Accounting Standards Council, PICPA was the main source for recommendations on the accounting practices and auditing standards (first issued in 1949). It also issued rules of professional conduct for its members. PICPA also publishes The accountant’s journal [Philippines] [p HF5601.A172ap].
Accounting Standards Council (ASC)

In November 1981, PICPA formed the Accounting Standards Council (ASC) as an independent body to formalise the accounting standard-setting function in the Philippines. This organisation consists of eight members: four from PICPA; one each from the PSEC, the Central Bank, and the Board of Accountancy; and one from the Financial Executives Institute of the Philippines. The ASC also issues the Statements of Financial Accounting Standards.

Board of Accountancy (BOA)

BOA has the authority to promulgate rules and set professional standards, subject to the approval of the Professional Regulations Commission (PRC), for PICPA members in the Philippines. The primary objective of the Board is the supervision, control and regulation of accounting practices in the Philippines. The BOA has published a code of professional ethics with the assistance of PICPA members and approved by the PRC.

Philippines Securities and Exchange Commission (PSEC)

PSEC is a government regulatory body that sets the requirements for financial reporting in the Philippines. It is responsible for implementing both the Corporation Code (Batas Pambansa Big.68) and the Revised Securities Act (Batas Pambansa Bld.178). It prescribes the minimum reporting requirements for all corporations that are registered under the Corporation Code. It also implements and prescribes the reporting requirements for securities issued to the public under the Revised Securities Act.

THAILAND

There are only two professional accounting and auditing bodies in Thailand. They are the Institute of Certified Accountants and Auditors of Thailand and the Board of Supervision of Auditing Practice.

Currently, the accounting practices of corporate bodies are controlled by

- The regulations introduced by government ministries such as the Ministry of Commerce;
- Guidelines of the Stock Exchange of Thailand (SET) & associated Securities legislation and
- The accounting standards of the Institute of Certified Accountants and Auditors of Thailand (ICAAT) and international accountancy bodies.
The Institute of Certified Accountants and Auditors of Thailand (ICAAT)

ICAAT is the only institute for the accounting profession in Thailand. It was established in 1948. The institute was initially named the Institute of Certified Accountants of Thailand, after which the present name came about on May 24, 1965.

ICAAT issues the Accounting Standard pronouncements which correlate very closely to the International Accounting Standards (IAS) and the US Generally Accepted Accounting Principles (GAAP). ICAAT has released about 16 accounting pronouncements in the area of accounting policies, accounting changes, earnings per share and income recognition. Most of their publications are in Thai, except for the accounting standards. 24 accounting standards have been translated into English while the remaining 6 accounting and 41 auditing standards are in the process of being translated.

The ICAAT publishes the following:

- The Accountants’ Journal.  
  *Three volumes are published every year to inform members and public about the Institute’s activities as well as to disseminate technical information and knowledge.*

- Accounting Standards and Technical papers.  
  *These publications are essential tools to the accountants and auditors to bring them in line with the IAS.*

ICAAT also disseminates other technical papers relating to seminars and training course held, such as the ASEAN Accountants’ Conference. These documents are available to members. Non-members and interested individuals may also purchase them.

More information about this organisation can be obtained from these web sites:
- [http://www.icaat.or.th/homeen.htm](http://www.icaat.or.th/homeen.htm) and
- [http://msm.byu.edu/c&i/cim/account/thailand/project.htm](http://msm.byu.edu/c&i/cim/account/thailand/project.htm)

The Board of Supervision of Auditing Practice

The Board of Supervision of Auditing Practice is a government agency affiliated to the Ministry of Commerce. This Board grants practising licenses to qualified auditors, revokes and suspends auditors if their work is found to be deficient, and gives advice to educational institutions concerning the auditing profession. It also requires all corporations and registered partnerships to establish and maintain proper accounting records, and to have their annual financial statements audited by certified auditors.

More information about this organisation can be obtained from this web site:
Stock Exchange of Thailand (SET)

Development of the capital market in Thailand began with the establishment of the Bangkok Stock Exchange (BSE) in 1962. The BSE was the first institutionalised stock exchange in Thailand. In 1969, the Thai Government with the assistance of the US Securities and Exchange Commission reorganised the BSE and five years later the Third NESD Plan (1972-76) created the Securities Exchange of Thailand Act (1974). This Act established a new regulatory body called the Securities Exchange of Thailand (SET). On 1 January 1991, the official name was changed to the Stock Exchange of Thailand. In May 1992, an amended SET Act of 1984 (No. 2) was replaced by the Securities and Exchange Act 1992 (SEA) which also made Securities Exchange Commission the sole supervisor of securities business.

Publications by the Stock Exchange of Thailand:
- Annual report. [r HD2320.S864]
- Fact book. [r HG5750.55.S864f]
- Listing securities in the Stock Exchange of Thailand. [r HG5750.55.S864e]
- Stock market in Thailand. [r HG5750.55.S864s]

More information about SET can be obtained from this website:
http://www.set.or.th/

Web Sites:
- Bank Indonesia  http://www.bi.go.id/
- Bapepam  http://www.indoexchange.com/bapepam
- Indonesian Institute of Accountants  http://www.akuntan.org
- Institute of Certified Accountants and Auditors of Thailand  http://www.icaat.or.th/homeen.htm
- Jakarta Stock Exchange  http://www.jsx.co.id/
- Ministry of Commerce (Thailand)  http://www.moc.go.th/
- Stock Exchange of Thailand  http://www.set.or.th/
- Surabaya Stock Exchange  http://www.bes.co.id/Begin.nsf/?Open

References:
1. Accounting in Thailand  http://msm.byu.edu/c/k/cim/account/thailand/project.htm
2. International Federation of Accountants  http://www.ifac.org/
3. Lexis-Nexis
Cao Laifa  
*Interpretation of In-Situ Tests in Clay with Particular Reference to Reclaimed Sites*

The undrained expansion and subsequent contraction of both spherical and cylindrical cavities in a modified Cam clay (MCC) material are analysed. The governing equations are formulated in an exact manner and subsequently solved using a simple numerical integration. A simplified close-form solution has also been obtained for the limit cavity stress. The solution is applied to the interpretation of the piezocone (CPTU) test and for the prediction of the overconsolidation ratio (OCR), the undrained shear strength (su) and the rigidity index. Results indicate the validity of the solution when the effect of strain rate and the initial stress state are considered. The cavity expansion solution is also used for the interpretation of the lift-off pressure in the dilatometer test (DMT) and for the prediction of OCR. Reasonable predictions of OCR are observed when results are compared with a large collection of oedometer test data in the Singapore marine clay.

The undrained expansion and contraction of a cylindrical cavity in a Kc-consolidation soil using the MCC model have been developed for the interpretation of the self-boring pressuremeter (SBP) test. The analysis shows that reliable soil properties can be obtained from the unloading section of the SBP curve, as well as from the loading section. The pore pressure measurement has been found to be as important as the internal pressure measurement in a SBP test. The theoretically deduced curve is shown to fit closely the observed curve. The su, OCR and the in-situ horizontal stress deduced from the SBP agree well with results from other tests.

The dissipation analysis around an expanded cavity using uncoupled Terzaghi-Rendulic consolidation theory has been found to be useful for the interpretation of piezocone dissipation tests. The coefficient of consolidation inferred from piezocone dissipation curves has been found to be comparable to oedometer test results.

An intensive test programme comprising in-situ tests and laboratory tests has been conducted at four recently reclaimed sites in Singapore. The proposed methods of interpretation have modified for application in clays which are still undergoing consolidation. The degree of consolidation as deducted from the predicted OCR has been found to agree well with that obtained from oedometer tests and by the field piezometer observations. Values of su and coefficient of consolidation derived from the piezocone test have also been found to be reasonable when compared with results obtained by other investigation methods.
Cheng Nian-Sheng

Seepage Effect on Open-Channel Flow and Incipient Sediment Motion

This study presents the experimental results and theoretical analyses on seepage effects on the structural features of open-channel flow and the critical condition for sediment entrainment.

Experimental investigations are conducted in two laboratory flumes with permeable sediment boundaries. The results on the structure of open-channel flow show that an upward seepage through the sediment bed causes changes in the velocity distributions, the rms values of velocity fluctuations, the Reynolds shear stress and the shear velocity. Along the seepage zone, the streamwise velocity is increased almost through the entire water depth, but the increase is much more apparent near the free-surface than the permeable boundary.

On the other hand, the rms values of velocity fluctuations increase more significantly near the bed than the surface of the flows. The velocity distribution subjected to seepage can be described by the modified logarithmic law, which is derived on assumption of the equilibrium layer. The roughness function included in the modified logarithmic law depends not only on the roughness Reynolds number but also on the dimensionless seepage velocity.

The bed shear stress in the middle section of the seepage zone can be computed using the momentum integral equation, which exhibits a decreasing trend with increasing upward seepage. Values of the bed shear stress computed using the momentum integral equation agree well with those derived from the measured Reynolds shear stress profiles, as well as with those computed using the modified logarithmic law.

This study also examines the effect of an upward seepage on the critical condition of incipient sediment motion. A theoretical critical condition is obtained by considering the force balance associated with a sediment particle lying on a permeable bed subjected to seepage. The proposed relation shows that the ratio of the critical shear velocity with seepage to that without seepage can be expressed as a function of the ratio of the seepage velocity to its critical value under the quick condition. The experimental results of the incipient sediment motion in open-channel flow show that, for a particular size of sediment, the critical shear decreases with increasing upward seepage velocity. All measured data generally support the theoretical expression of the critical shear velocity in the presence of seepage.

The pick-up probability for sediment erosion in the case of seepage is proposed for the hydraulically rough regime. The pick-up probability depends on the Shields parameter, the lift coefficient, the seepage velocity, the near-bed approach velocity and the near-bed turbulent intensity. The upward seepage reduces the dimensionless approach velocity and the effective weight of bed particles but increases the near-bed turbulent intensity.

The computations according to the derived expression show that reduced dimensionless approach velocity results in decreasing the pick-up probability, while increased near-bed turbulent intensity cause either an increase of the pick-up probability for low Shields parameters or a decrease for high Shields parameters. The reduced effective weight of bed particles can cause a pronounced increase in the pick-up probability.
Han Khee Kwong

Effect of Hysteresis, Infiltration and Tensile Stress on the Strength of an Unsaturated Soil

This thesis investigates the effect of tensile stress, hysteresis and stress path on the strength of an unsaturated soil.

Granitic residual soil from Singapore is statically compacted in the shear box. Identical specimens can be prepared using this method. All the tests are single stage whereby only one specimens is used in each test.

Two direct shear apparatuses are modified for the unsaturated tests. One apparatus is used for drained shearing of specimens under constant matric suction. The other apparatus is constructed for tests simulating the field stress path of rain-induced slope failure. Both apparatuses are used for tests with soils experiencing both wetting and drying.

The test results indicate different values of strength from constant suction shearing and infiltration tests. Strengths from the constant suction shearing tests are lower than those from the infiltration tests. Results from the constant suction shearing tests show that the strengths as well as the shear behaviour are affected by hysteresis. The strengths of soils getting wetter are lower than those getting drier.

Wetting is always associated with the dilatant and brittle shear behaviour of soils. Whereas drying is normally linked to the soils failing in contractant and ductile condition.

A strength envelope for failure of unsaturated soils in tensile condition has been proposed. The validity of the proposed tensile strength envelope has been verified by the test results for soils undergoing both wetting and drying. The test results also confirm the existence of a relationship between the net tensile strength, \( (s_t - u_a) \), and the matric suction at failure, \( (u_a - u_w) \), in the soils.

Tan Leong Chee

Utilisation of Municipal Fly Ash - Environmental and Geotechnical Aspects

The purpose of the research is to evaluate the potential utilisation of the MFA as a soft clay stabiliser, and to evaluate the environmental acceptability of the MFA for geotechnical applications.

MFA from Tuas Incinerator Plant in west Singapore is extensively investigated for its chemical and physical properties, elemental contents, leaching characteristics of the major constituents and heavy metals, and chemical associations of heavy metals. Soft clay excavated from the Singapore marine clay of the Kallang Formation is mixed with 20% and 30% MFA.

The geotechnical properties of the soil-MFA mixtures for samples cured for 1, 7, 28, 60, 90, 180, and 360 days are investigated. The leachability of the major constituents and heavy metals from the soil-MFA mixtures for samples cured for different times are evaluated using batch extraction tests. Chemical associations of heavy metals in the soil-MFA mixtures are also investigated.

The addition of MFA to soft marine clay increase the unconfined compressive strength of the remoulded marine clay considerably. The strength increase is influenced by the MFA content.

However the MFA contain elevated levels of heavy metals, particularly cadmium and lead. The leachability of the heavy metals from soil-MFA mixtures is found strongly pH-dependent.
Generally, a low amount of heavy metals is extracted in the pH range of 7 to 12.4. The amount of heavy metals extracted rise substantially when the pH is lowered to 5. Zinc, lead, copper and cadmium are mainly associated with carbonate bound and Fe-Mn oxide fractions in MFA and soil-MFA mixtures. The chemical associations of heavy metals in the soil-MFA mixtures are found quite similar to that in the MFA.

Although it seems promising to utilise the MFA as a soft clay stabiliser from a geotechnical point of view, the acceptability of the MFA for geotechnical applications is governed by the environmental considerations.

The amount of heavy metals in the extractable fraction before mixing with marine clay is found unchanged after the mixing. The retention of the heavy metals in the MFA and soil-MFA mixtures relies heavily on pH control.

The lateral confinement resulting therfrom produces enhancement in strength and post-peak ductility.

However, the effectiveness of the confinement is proportionately reduced with the increase in the aspect-ratio. Methods are proposed to predicted the ultimate capacity of concrete under such confinement.

For the cyclic loads, both low and high cycle fatigue loadings are carried out. The mechanism of damage and the dissipation of energy by concrete and the lateral steel is described using the energy approach. The approach is useful in the prediction of the ultimate strain of confined concrete at failure. It is also found that the fatigue failures of both unconfined and confined concrete are independent of the strength of concrete. Lateral confinement is found to increase the fatigue strength of concrete but the benefit from confinement decreases as the number of load cycles increases.

Tan Teng Hooi  

**Behaviour of Concrete Confined by Circular and Elliptical Hoops Under Axial Loads**

The thesis is about the investigation of the behaviour of concrete confined by lateral reinforcement. Experimental program for the testing of the confined concrete using circular spirals and elliptical hoops is described. Those specimens with circular spirals are tested under monotonic and cyclic axial loads whereas those with elliptical hoops are tested under monotonic axial load only.

A method is proposed to separately consider the effects of reinforcement size and spacing in evaluating the extent of confinement. Elliptical hoops are found to be a viable form to provide lateral confinement to concrete.

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“The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skills. To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and work.”

A. Einstein & L. Infeld  
The Evolution of Physics
Competition for the future.

1 videocassette (VHS NTSC) (30 min.)
Call no : J508459

This program shows executives how to seize control of their future. Through case studies and analysis, the program also shows how companies that focus on the future have the best chance of shaping the future.

Competing through information technology.

Nathan/Tyler Production.
2 videocassettes (VHS NTSC) (139 min.)
Call no : B503014 & D503015

James Cash and Warren McFarlan demonstrate how to manage information technology to achieve competitive advantage. They focus on maximizing the impact of new technology by tailoring management control systems to IT needs of organizations.

The competitive advantage of nations: the new paradigm for company competitiveness and global strategy.

Nathan/Tyler Production.
4 videocassettes (VHS NTSC) (290 min.)
Call no : C505111; E505112; G505113; J505114

The purpose of this program is to give you a whole new way of thinking about competitiveness, to give you a working understanding of how to apply this thinking in actual industry and actual countries all around the world and finally to translate these ideas into action for your particular organization. You will have some clear and new way of thinking about what it takes to be a world leaders today and to understand your international rivals and to build and maintain an innovative organization.

Customer loyalty:

measuring, managing, making money.

Produced by Harvard Business School Video in association with David Grubin Associates, Inc.
1 videocassette (VHS NTSC) (20 min.)
Call no : L508186

Describes the “REGARDS” customer loyalty program undertaken by the Dayton-Hudson Corporation during the 1980’s.

Expanding value: building loyalty.

Produced by Harvard Business School Video in association with David Grubin Productions, Inc.
1 videocassette (VHS NTSC) (21 min.)
Call no : B508190

Describes Pioneer Hi-Bred International Seed Company’s development of a database to customize its sales approach for each of its customers, a process which enhanced the company’s credibility and provided a foundation for new service innovations.
Making loyalty the mission.

Produced by Harvard Business School Video in association with David Grubin Productions, Inc.
1 videocassette (VHS NTSC) (18 min.)
Call no : D508188

Describes how Vail ski resort restructured its individual departments’ guest information systems, integrating each into a single master database, while utilizing tracking technology to facilitate personalized treatment of its repeat customers and raise the standards of services for all its guests.

Managing across borders.

Nathan/Tyler Production.
3 videocassettes (VHS NTSC) (225 min.)
Call no : B505116; D505117; F505118


Measuring corporate performance.

Flying blind: how traditional measures mislead.

1 videocassette (VHS NTSC) (30 min.)
Call no : L504824

This program introduces two new approaches: the balanced scorecard and activity-based management. Flying Blind shows these new approaches at work in four companies: Chrysler Corporation; Maplehurst/Ready Bake, a producer and distributor of frozen bakery products; FMC Corporation, a diversified manufacturing company; and Barclay’s Bank.

Measuring corporate performance.

Activity based management.

2 videocassettes (VHS NTSC) (65 min.)
Call no : H504831 & E504835

Part 1 presents the features and benefits of using activity-based costing (ABC) and its corollary, activity-based management (ABM). Part 2 is designed for financial, planning, production, and other managers involved in the implementation of ABC. ABM is the use of information from ABC systems to make management decisions.

Measuring corporate performance.


1 videocassette (VHS NTSC) (30 min.)
Call no : D504826

The balance scorecard is a management approach that leads a company or business unit to focus both on achieving current financial results and on creating future value through strategic activities. Kaplan and Norton argue that senior managers need this balanced approach because management’s traditional emphasis on financial measures alone cannot motivate, predict, or create future performance.

People service success.

The lifetime value of customers.

1 videocassette (VHS NTSC) (30 min.)
Call no : C504543

The program takes viewers behind the scenes at MBNA America and Sewell Motor Company. Viewers see how MBNA focuses on finding and keeping the “right” customers through extraordinary service and how Sewell keeps customers loyal with systems and processes that deliver superior service time after time.

Michael Porter on competitive strategy.

Nathan/Tyler Production.
2 videocassettes (VHS NTSC) (149 min.)
Call no : E502246 & G502247

Michael Porter presents his approach in formulating and implementing competitive strategy: Part 1 demonstrates how to analyse competitiveness of an industry and Part 2 illustrates competitive strategies in action at Proctor & Gamble, American Airlines and Cray Research.
People service success.
Listening to customers.
1 videocassette (VHS NTSC) (30 min.)
Call no : E504544

The program takes viewers behind the scenes at MacIsaac Products for the Office, Intuit, and the Ritz-Carlton. These three companies have institutionalized listening by first making it a key component in their culture, establishing “listening posts” as a way to “hear” their customers and employees, and then putting the feedback into action by developing elaborate systems to track, share, and integrate the information throughout their organizations.

People service success.
Mobilizing people for breakthrough service.
1 videocassette (VHS NTSC) (30 min.)
Call no : A504542

The program takes viewers behind the scenes at Southwest Airlines and Service Master to see how these companies have become industry leaders by recruiting, training, and supporting the frontline employees who deliver their services to customers.

People service success.
Saving customers with service recovery.
1 videocassette (VHS NTSC) (30 min.)
Call no : G504545

The program highlights the impressive service recovery systems implemented by two companies, British Airways and Intuit. Mini case studies focus on the Ritz-Carlton Hotel Company, MacIsaac Products for the Office, and Sewell Motors.

People service success. The service profit link.
1 videocassette (VHS NTSC) (35 min.)
Call no : K504541

The program takes viewers behind the scenes at Taco bell, Citibank, and Xerox to see how changes in corporate mind-set, organizational structure, service delivery, operating systems, and human-resource management enabled these companies to deliver superlative service.

Puting the learning organization to work.
Produced by Harvard Business School Video in association with David Grubin Production, Inc.
3 videocassettes (VHS NTSC) (82 min.)
Call no : L508432; F508435; A508438

These three video programs demonstrate examples of how learning organizations work and show you how to apply learning organization concepts within your own company. “Learning before doing” demonstrates how to design and implement innovations more effectively by systematically experimenting before risking significant resources. “Learning while doing” demonstrate how to improve your organization’s problem solving skills by designing corporate education that enables employees to learn while solving their own business problems. “Learning after doing” demonstrates how to systematically capture lessons learned after key activities and share those lessons throughout your organization.

Reengineering the manufacturing organization.
1 videocassette (VHS NTSC) (53 min.)
Call no : L515160

This programme presents the compelling stories of three manufacturing companies that have reengineered themselves successfully. Pratt & Whitney reengineered its work flows to achieve breath-taking efficiency gains. Texas Instruments Semiconductor Group applied reengineering to reconceive its worldwide operations as a single “virtual factory.” General Motors’ Saturn Corporation reengineered relationships between management and labor as part of a successful strategy to reinvent the American-made small car.
This program takes viewers behind the scenes at Magna Metals, the Ritz-Carlton, and Sealed Air Corporation to see how these companies successfully implemented a team-based management structure to help a failing business, improve customer service and boost sustainable levels of productivity.

All titles are available for loan at the Media Dept, Library 2.