



**MAE FAH LUANG
UNIVERSITY**
*School of
Information Technology*
www.mfu.ac.th



**INTERNATIONAL INSTITUTE
OF
INFORMATION TECHNOLOGY**
School of Technology
www.isquareit.ac.in

Master of Science Programme in Advanced Software Technology in collaboration with International Institute of Information Technology, India



MFL University, Thailand



I²IT India

Both institutions share the same educational philosophy: to produce world-class IT graduates that satisfy the needs of the IT industry.

Mae Fah Luang University (MFLU) was established in 1998 in response to the needs of the people in the North of Thailand. However, it has attracted students from all parts of Thailand. In the past 6 years, it has developed and become known as the fastest-growing university in Thailand. All courses in the undergraduates and postgraduates are conducted in English except Law.*

The International Institute of Information Technology (I²IT) was established in 2001 to provide postgraduate education and training in advanced information technology and IT management.

The collaboration between the two institutions has helped create 2 Master Degree courses:

Master of Science in Advanced Software Technology, and Master of Science in Advanced Information Technology.

These courses are based on the successful curricula currently used at I²IT. They will be taught with the assistance of at least half of the academic staff from I²IT. The three co-ordinates for all courses offered are: theoretical foundations, applied practice and real-life experience.

THE PROGRAMME

This 2-year, 4 semester, 46 credits Master's programme in Advanced Software Technology is designed to equip students to accept responsibilities in the following areas:

- Advanced Web Applications
- Enterprise-wide Application System
- Database Technologies
- Intelligent Data Management Approaches

COURSE STRUCTURE

- Successful completion requires 46 credits
- Project work worth 6 credits in the last semester, for industry exposure

DISTINCTIVE FEATURES

- Teaching in modular style (one subject after another)
- Laboratory sessions to gain hands-on experience on various technological tools and platforms
- Exposure to Web Application Development Technologies like Java technologies, .NET Technologies and Wireless Technologies
- Hands-on experience with database administration
- Hands-on experience with SAS and SAP

ELIGIBILITY

- Graduates with a Bachelor's degree in Computing Science, Information Technology, Computing Engineering, Electrical Engineering and Science
- Graduates with a Bachelor's degree from other disciplines with at least 2 years IT industry experience and sound knowledge in C and C++ programming languages

COURSE COMMENCEMENT

The course commences in June

EVALUATION AND CERTIFICATION

- Periodic evaluation and performance improvement programme
- Module-wise credits
- Balanced assessment based on internal assignment, examination and project work
- Detailed transcript with a joint degree by both universities

CURRICULUM

FOUNDATION AND AUDIT COURSE

- **English (non-credit)**
This module is designed for students aspiring to learn an important foreign language for business communication to avail of global career opportunities. An English language course will be a pre-requisite for students who do not have proficiency in English.
- **Communication Skills and Leadership Training (2 credits)**
This module aims to improve the students' communication skills and to develop leadership qualities. The student will be taught, time management, self management, leadership, team building and negotiation techniques.
- **ICT Business Management (2 credits)**
This module provides students with basic management skills for performing in Information & Communication Technology with high emphasis on computer usage and office productivity and project management. The topics include applying principles of effective communication, time management, interpersonal skills, project management, product management, innovation management and finance management.
- **IT Research Methodology (1 credit)**
This module introduces the basic research methodology which the students can utilize in carrying out their researches in the 4th semester. It also covers research and technical writing techniques and presentation skills.

Core Courses

- **Database Technology (2 credits)**
This module focuses on the theory of database engineering. The module includes topics like file processing, introductory data structures, the differences between file processing and database processing, fundamental concepts of the relational model, normalisation of data, database integrity issues, database design, SQL and an overview of the functions of a database management system
- **Theory of Operating Systems (2 credits)**
This module covers operating system design concepts with examples from the Linux and Windows operating systems. The topic covered (tentative) include operating system structures, process and thread management, process synchronization and communication, memory management, virtual memory, file system, I/O subsystem and device management, communication, protection and security.
- **Computer Architecture (2 credits)**
This module focuses on the study of the hardware structure of computer systems and sub-systems. Topics include: processor architecture, parallelism and pipelining, cache and memory organization, I/O controllers and interconnection structures.
- **Data Structures and Algorithms (2 credits)**
This module focuses on different data structures and their applications in computer programming. The data structures covered here are array, stack, queue, linked lists, binary tree and various sorting and searching algorithms.
- **Data Communication and Networking (2 credits)**
In this module, the emphasis will be on developing an understanding of the underlining principles of data communications and networking. The student will learn the concepts and terminology of data communications and protocols, standards, LANs, WANs, the internet, intranet and networking applications.
- **Wireless Technologies (2 credits)**
Topics include Introduction to mobile communication, cellular mobile telephone architecture overview, cellular radio system design – Frequency assignments, frequency reuse channels, the concept of cell splitting, handover in cellular systems, handoff algorithms, Multiple Access Schemes in mobile communications – TDMA, FDMA, CDMA. Random Multiple Access Schemes, Performance analysis issues.
- **Data Structures and Algorithms (2 credits)**
This module focuses on different data structures and their applications in computer programming. MAC layer scheduling and connection admission in mobile communication. Interference suppression and Power control. Teletraffic modeling and Queuing theoretic analysis of cellular mobile networks. Resource allocation and mobility management. Practical Cellular mobile systems – AMPS and GSM system architecture overview. Call management and system operation. CDMA based cellular system. Wireless in local loop – DSSS and CDMA WLL.
- **Web Engineering & Web Application (2 credits)**
This module exposes students to the various principles of creating high quality web applications. The topics covered include web application development process, web engineering process and design, testing and deployment phases in the web application development life-cycle and the S/W tools required for web application.
- **Enterprise Application architecture (2 credits)**
This module aims to consolidate the knowledge on this particular business software for running every aspect of a company including managing orders, inventory, accounting, and logistics. Well known ERP software providers include SAP, Oracle, PeopleSoft and SAP, collectively known to industry insiders as "BOPS". ERP software deployments are usually associated with very large companies such as those in the Fortune 500 list, but as competition drives technology forward, accounting and industry-specific business management software is entering the ERP market space.
- **Software Engineering & Project Management (2 credits)**
This course provides a comprehensive analysis of software engineering techniques and shows how they can be applied in practical software projects, all with an object-oriented approach.
This course extensively covers software process technology, system integration, requirements management, software project management, verification and validation, risk analysis, pattern based reuse, dependable systems development, distributed system engineering, and legacy systems.
- **Database Application Development (2 credits)**
This module focuses on the application development features of the database. Programming features of a database like PL/SQL, PSP, feature of web application, Java-stored procedures and SQLJ are covered here.
- **Advanced Database Concept (2 credits)**
The focus of this module is the advanced concepts of database technology. It discusses concepts like transaction handling, concurrency control, integrity and security and various database system architectures.
- **XML Technology and Applications (2 credits)**
This module introduces XML (its structure and its applications in business), the related technologies and its use for e-business application. The topics covered include DTD, schema, messaging, client and server side XML, XSL, SOAP and XML for B2B.
- **Data warehousing & Data mining using SAS (3 credits)**
The main objective of this module is to unfold the concepts of data warehouse, OLAP, data mining and the design process. The topics include datamart, datamining, ETL process structure, data transformation services and OLAP service architecture. The course also focuses on the use of **SAS (one of the world's leading data warehousing software)** and include topics such as SAS programming, SAS data sets, statistical analysis using ANOVA, regression, logistic regression, designing and creating data warehousing, querying and reporting using enterprise guide. The data warehouse design process is evolutionary in nature, it requires better understanding of the design architecture and therefore the module is introduced at the later part of the programme.
- **Introduction to Multimedia Technologies (2 credits)**
The objective of this course is to introduce current techniques in multimedia communications especially as applied to wireless networks. The course will introduce the basic issues in multimedia communication and networking. Topics include: multimedia information representation: text, images, audio, video, multimedia compression: text, image, audio, video, Standards for multimedia communication; transmission and protocol; circuit switched network; the internet, broadband ATM network; packet video Network environment; Transport protocol -TCP/IP, TCP; UDP; RTP; wireless network-model, characteristics.
- **Advanced Database Management and Administration (2 credits)**
This module aims to expose the various administration issues of a database management system. The issues such as backup and recovery, performance tuning, security of a database and the general administration of a database will be covered here.
- **Enterprise Application Development Technologies (2 credits)**
This module introduces the opportunities and challenges of creating enterprise-level applications. Students will study how creating such flexible and scalable applications can be challenging and they will learn how to address these challenges by employing appropriate design, tools and technology. The topics covered include COM, DCOM, CORBA, Java programming using J2EE, EJB, transaction services, application services and protocols like SOAP
- **Web Server Technology (2 credits)**
This module introduces the major web server software available today, as well as the hardware required. The topic includes discussion of web servers like Apache, IIS, web sphere and writing applications using CGI and PERL, server configuration, server administration, security and PHP.
- **Object Oriented Analysis and Design using Unified Modeling Language (2 credits)**
This module focuses on the major techniques of the Unified Modeling Language (UML), object-oriented analysis and design notation and how these techniques can be applied to improve quality of productivity during the analysis and design of application. The topics covered include object models, analyzing the system requirements, modeling concepts provided by UML analysis and documentation of software designs using the unified process, identification of use cases, behavioural designs, design patterns to refine analysis and design models, implementation, testable and adaptable designs.
- **Project (6 credits)**
A project has to be submitted in the form of a dissertation, which will be examined by experts nominated by the institute.

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The Institute reserves the right to change / revise without prior intimation the course contents as per the prevailing market conditions and technological advances.