COURSE SYLLABUS
CSC12107 – Information Systems for Business Intelligence

1. GENERAL INFORMATION

Course name:	Information Systems for Business Intelligence
Course name (in Vietnamese):	Hệ thống thông tin phục vụ Trí tuệ kinh doanh
Course ID:	CSC12107
Knowledge block:	
Number of credits:	4
Credit hours for theory:	45
Credit hours for practice:	30
Credit hours for self-study:	90
Prerequisite:	
Prior-course:	
Instructors:	Hồ Thị Hoàng Vy

2. COURSE DESCRIPTION

The course is designed to provide students the knowledge and skills for using data warehouses (DW) for business intelligence (BI). Students can have an overview of how to develop data models, how to combine data from disparate sources into a single database and how BI technologies can support decision making such as OLAP on Data warehouse, data mining, dashboard and report.

COURSE GOALS

At the end of the course, students are able to

ID	Description	Program LOs
G1	Apply teamwork skills to present or discuss related topics/concepts about DW and BI	2.2.1, 2.2.2, 2.3.2
G2	Use the skill of reading technical documents about data warehouse in English	2.4.3, 2.4.5
G3	Analyze business requirements and propose a suitable DW	4.1.1, 4.1.2, 4.1.3, 4.1.4
G4	Identify the main data mining tasks and some algorithms for predictive and descriptive analysis on business intelligence.	5.1.1; 5.1.2; 5.2.1, 5.3.2
G5	Implementation of a DW/BI project with MS BI tool	1.4.3

3. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	Apply teamwork skill in discussing/presenting the solutions about interation data, design and exploit data warehouse	U
G1.2	Use presentation skills to present solutions to design and exploit DW.	U
G2	Use the skill of reading technical documents about data warehouse in English	U
G3.1	Distinguish a data warehouse from an operational database system, and appreciate the need for developing a data warehouse for large corporations	I
G3.2	Define the meaning of the facts and dimensional attributes, the data hierarchy.	T,U

G3.3	Design a Star or Snowflake data model diagram through the Multidimensional Design from analytical business requirements and OLTP system	T,U
G4.1	Differentiate some data mining application in BI.	I
G4.2	Explain the process of data mining, its important and some well-know techniques.	I
G5.1	Deploy the ETL procedure to extracting data from disparate databases and data sources, and then transforming the data for effective integration into a data warehouse using SSIS tool	T,U
G5.2	Operate the basic OLAP technologies using SSAS tool	T,U
G5.3	Create dashboard and other visualizations to analyze and communicate the data from DW using SSRS or excel…	T,U
G5.4	Applying the data mining algorithms in Analysis Services to your data.	T,U

4. TEACHING PLAN

ID	Topic	Course outcomes	Teaching/Learning Activities (samples)
1	**Chapter 1: overview of business intelligence** • Describe the business intelligence (B I) concepts and relate them to DSS • Summarize main applications and business value for BI • Understand the various types of analytics • Information gathering	3.1	Lecturing Q&A, Group discussion

	• Decision-making		
2	Chapter 2: Data warehouse • What's a data warehouse • DW architecture • DW development	3.1	Lecturing Q&A QZ2: Quiz 2
3	Chapter 3: data modeling • Dimensional data store • Dimension/fact table • Data hierachy • Slowly changing dimension	3.2, 3.3	Lecturing Discussion QZ3: Quiz 3
4	Chapter 3: data modeling	1.1,1.2,3.2, 3.3	Case study, discussion
5	Chapter 4: ETL process • Introduction to ETL • ETL approach and architecture • Extracting data sources	5.1 3.1 1.1	Lecturing
6	Chapter 4: ETL process Populate the DW (stage loading, NDS, dimension/fact table, refresh data)	5.1 3.1 1.1	Question & answer Case study and discussion QZ4: Quiz 4
7	Chapter 5: Business intelligence OLAP	4.1,3.2, 3.3, 5.2	Lecturing, Case study
8	Chapter 6: Business intelligence report, dashboard	4.1, 5.3	Lecturing Q&A, discussion
9	Chapter 7: Business intelligence mining	1.1, 4.1, 4.2, 5.4	Lecturing, Case study, discussion
10	Chapter 7: Business intelligence mining	1.1, 4.1, 4.2, 5.4	Case study, discussion

11	Review		Lecturing
			Q&A, Discussion
			Project submitted

For the practical laboratory work, there are 10 weeks which cover similar topics as it goes in the theory class. Each week, teaching assistants will explain and demonstrate key ideas on the corresponding topic and ask students to do their lab exercises either on computer in the lab or at home. All the lab work submitted will be graded. There would be a final exam for lab work.

5. ASSESSMENTS

ID	Topic	Description	Course outcomes	Ratio (%)
A1	**Assignments**			**20%**
A11	Quizzes: QZ1, QZ2, QZ3, and QZ4.	Small quizzes in class for each topic		5%
A12	Homework: HW1, HW2, and HW3	HW1, HW3: reading comprehension and writing reports in English HW2, HW3: practicing based on knowledge taught in class		5%
A13	Weekly labwork: LW1–LW10			10%
A2	**Projects**			**30%**
A21	Project			20%
A3	**Exams**			**50%**

A31	Midterm exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		20%
A32	Final exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		30%

6. RESOURCES

Textbooks

- Building a data warehouse with examples in SQLserver - Vincent Rainardi

Others

- Business Intelligence Guidebook - From Data Integration to Analytics - Rick Sherman
- Business Intelligence, Analytics, and Data Science: A Managerial Perspective – Ramesh Sharda, Dursun Delen, Efraim Turban

7. GENERAL REGULATIONS & POLICIES

- All students are responsible for reading and following strictly the regulations and policies of the school and university.
- Students who are absent for more than 3 theory sessions are not allowed to take the exams.
- For any kind of cheating and plagiarism, students will be graded 0 for the course. The incident is then submitted to the school and university for further review.
- Students are encouraged to form study groups to discuss on the topics. However, individual work must be done and submitted on your own.