

Course Description

Name of University:	Rangsit University
School/Faculty/Department:	Rangsit University International College

1. General Information

1. Course ID and Course title	ICT 324 Introduction to Data Warehousing and Data Mining
2. Credit units (Number of hours per week for lecture, lab, and self-study)	3 hours (3-0-6)
3. Programme and Categorization of course	This subject is a selective subject in Information and Communication Technology program for International College Program of Rangsit University
4. Responsible faculty member and list of instructors	Dr. Kritsada Sriphaew
5. Semester/Year level	Semester 1/2025 / 2 nd -3 rd year
6. Pre-requisite course(s) (if any)	None
7. Co-requisite course(s) (if any)	None
8. Place of study	Rangsit University, Muangake Campus
9. Date of preparation or latest update	August 24, 2025

2. Learning Objectives and Development Objectives

1. Learning objectives	The students will be able to: <ol style="list-style-type: none"> Understanding concepts and analytical techniques for data warehousing and data mining as applied to information technology aspects Developing skill for solving on practical applications especially for data analytics in business
2. Objectives for course development/improvement	<ol style="list-style-type: none"> Understanding concepts and analytical techniques for data warehousing and data mining statistics as applied to business and information technology aspects Developing skill for solving on practical applications especially for data analytic in business Developing skill for solving on practical applications especially for everyday life problems Understanding how to apply theories into the real-world business and applications

3. Course Content and Activities

1. Course content	Fundamental concepts of data warehousing, data marts, and knowledge systems; Principles and techniques associated with data warehousing and data mining. Emphasis on design aspects of data warehouses and the associated issues that must be resolved prior to implementation		
2. Number of hours per each semester			
Lecture	Tutorial	Lab/Field Study/Workshop	Self-study
Lecture 45 hours	Upon requested	Homework, assignment, presentation	6 hours per week
3. Number of hours per week for advising and academic counseling for individual students			
<ul style="list-style-type: none"> - Students can request for academic advices prior/after classes or in class hours. - Students can make appointment or stop by at the faculty members' offices during the specified office hours (18 hours per week). - Students can request academic help through the Department or emails of faculty members. - Students can contact instructor by email, phone, facebook on emergency event. 			

4. Learning Outcomes

1. Morals and ethics	The course aims to develop students to have morals, understand ethics and codes of conducts in their real life. The students will be able to possess ethical, moral and honest behavior academically and professionally, especially performing in the complicated statistical mathematics theories and statistical problem applying to daily life.
1.1 Morals and ethics needed to develop	<ul style="list-style-type: none"> - The students will be developed to be investor in the financial markets, performed ethical and honest behavior to comply with professional codes of conducts, rules and regulations of the organizations and the society. - The students need to have self disciplinary and punctuality in attending the class and submitting assignments. - The students need to pay respect to other's people's rights and opinions.
1.2 Methodology	<ul style="list-style-type: none"> - Lecture and give case studies on statistical mathematical problems; causes of unethical behaviors and effects on performance. - Encourage students to express their opinions in class. - Case study analysis on statistical mathematical problems. - Check attendance and apply the classroom policies.
1.3 Assessment	<ul style="list-style-type: none"> - Observing students' behavior and manner in class. - Evaluating homework and assignment.
2. Knowledge	The students will be able to understand the fundamental concept on data warehousing and data mining concepts and ideas in problem solving and decision making, and also apply

theories into the real world business.
2.1 Expected knowledge to be gained
<p>The students will be able to:</p> <ul style="list-style-type: none"> - Gain overall knowledge in data warehousing and data mining concepts and ideas in problem solving and decision making. - Possess analytical skills, problem-solving skills, communication skills, IT skills, business skills. - Possess understanding of theories and principles of and new development in the data mining problems.
2.2 Methodology
<p>Lecture and give case studies on data warehousing concepts, a design of data warehousing, data pre-processing, data post-processing and data mining techniques so that students can apply knowledge in the real-world business and applications.</p>
2.3 Assessment
<ul style="list-style-type: none"> - Examinations on theories and application related to data warehousing and data mining. - Home works, quizzes and examinations on contents from time to time. - Evaluating case study analysis. - Check class attendance.
3. Intellectual Skills
<p>The students will be able to critically and logically analyze on data warehousing and data mining concepts and ideas in problem solving and decision making and also utilize theoretical knowledge to solve any analytical problems.</p>
3.1 Intellectual skills needed to develop
<p>The students will be able to:</p> <ul style="list-style-type: none"> - Critically and logically analyze data and ideas in problem solving and decision making. - Successfully find solutions to analytical problem solving and decision making related to personal and business problems. - Have innovative and initiative ideas in utilizing theoretical knowledge to solve personal and business problems. - Solve the problems intellectually and professionally. - Analyze and predict the expected outcomes from decision making, problems solving. - Initiate and develop systematic, effective, efficient working process with respect to the real situation.
3.2 Methodology
<ul style="list-style-type: none"> - Lecture and give case studies on data warehousing and data mining problem solving and decision making related to personal and business problems. - Homeworks, quizzes and examinations on contents from time to time. - Case study analysis on statistical mathematical problems. - Assign group assignments on statistical mathematical problems.
3.3 Assessment
<ul style="list-style-type: none"> - Examinations on theories and application related to data warehousing and data mining problems concepts. - Homeworks, quizzes and examinations on contents from time to time. - Evaluating case study analysis on data mining problems. - Check class attendance.
4. Interpersonal skills and responsibility

<p>The students will be able to cope with changing environmental issues and continuously engage in self and professional development</p>
4.1 Interpersonal skills and responsibility needed to develop
<p>The students will be able to:</p> <ul style="list-style-type: none"> - Identify the cause of problems and develop effective action plans for personal and business solutions under data analytical concepts. - Open and willing to learn and reasonably accept criticism. - Work as a team to analyze data and present the findings to the class. - Have responsibility in the home works and assigned term paper. - Possess ability of being a good leader and a good follower and solving problems based on their priority in the assigned term paper.
4.2 Methodology
<ul style="list-style-type: none"> - Homeworks and quizzes from time to time. - Discuss on data analysis techniques and scenarios.
4.3 Assessment
<ul style="list-style-type: none"> - Examinations on theories and application related to data warehousing and data mining problems concepts. - Homeworks, quizzes and examinations on contents from time to time. - Evaluating case study analysis and presentation. - Check class attendance.
5. Quantitative skills, communication skills, and ICT skills
<ul style="list-style-type: none"> - The students will be able to possess ability in acquiring and analyzing information in making personal and business decisions on statistical mathematical problems. - The course also develops quantitative analysis skills and ICT skills to facilitate mathematical case study.
5.1 Quantitative skills, communication skills, and ICT skills
<p>The students will be able to:</p> <ul style="list-style-type: none"> - Possess and able to apply appropriate quantitative skills and techniques in mathematics, statistics, to solve problems. - Possess ability in acquiring and analyzing information in making personal and business decisions. - Possess ability in summarizing, communicating and presenting statistical mathematical problems effectively. - Possess discretion in the use of communication and information technology in an appropriate manner.
5.2 Methodology
<ul style="list-style-type: none"> - Self study on statistical mathematical problems solving and decision making related to personal and business problems from website. - Assign group assignments and discuss article on statistical mathematical problems current news.
5.3 Assessment
<ul style="list-style-type: none"> - Examinations on theories and application related to data warehousing and data mining concepts. - Homeworks, quizzes and examinations on contents from time to time. - Evaluating case study analysis and presentation. - Check class attendance.

5. Course Planning and Assessment

1. Course planning				
Week	Topics/Details	Hours	Learning Activities /Media	Instructor
1	Introduction to Course	3	Lecture Exercises	Kritsada
2	Join Seminar	3	Seminar	Kritsada
3-4	Data Warehousing and OLAP	6	Lecture Exercises	Kritsada
5	Business Intelligence Workshop	3	Workshop	Kritsada
6	Data Mining Concept	3	Lecture	Kritsada
7	Data Pre-processing and Post-processing		Lecture Quiz	
8	TERM BREAK			
9	Association Rule Mining	3	Lecture Exercises	Kritsada
10	Midterm Exam	3	Exam	Kritsada
11-13	Classifications	9	Lecture, Exercises,	Kritsada
14	Clustering	3	Lecture, Exercises	Kritsada
15	Free Topics	3	Lecturer, Exercises,Quiz	Kritsada
16	Final Exam	3	Exam	Kritsada
2. Assessment				
Activity	Learning Outcome	Assessment Method	Assessment Week	Marks Allocation
1	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 5.1, 5.2, 5.3, 5.4	Midterm Final	Week 10 Week 15	20% 50%
2	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4	Class attendance	Week 1-15	10%
2	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 5.1,	Exercises and Assignments	Week 1-15	40%

5.2, 5.3, 5.4			
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6. Course Resources

1. Required text books and readings Kritsada Sriphaew, Data Warehousing and Data Mining: Course Material , Asia Digital Printing (2012).
2. Supplementary reading list/references Jiawei Han and Micheline Kamber, Data Mining: Concepts and Techniques , 3 rd -Edition, Morgan Kaufmann Publishers (2012).
3. Recommended reading list/references Academic Journals website

7. Course Feedback and Improvement

1. Course evaluation by students <ul style="list-style-type: none"> - Discussion with students - End-semester questionnaire - Class evaluation/peer evaluation - Questioning and answering session in class
2. Other methods of course evaluation <ul style="list-style-type: none"> - Discussion with faculty staff
3. Course development and improvement <ul style="list-style-type: none"> - Course workshop and meeting - Course mentor - Class observation - Knowledge sharing
4. Quality assurance of the course <ul style="list-style-type: none"> - Internal committees - External committees - Internal quality assurance - External quality assurance
5. Course revision and development plan <ul style="list-style-type: none"> - Major revision every 5 years - Minor revision where appropriate