

## **Information Systems – Industrial Engineering**

### **Introduction**

Graduates of Information Systems wanting to focus on information technology must also have an understanding of the business processes of enterprise. Similarly, an Industrial Engineer who wants to be involved in a career in Industrial technology, must also focus on this subject. With these careers in mind, UBINUS provides a double study program: Industrial Engineering and Information Systems, in order to prepare students for the dual roles of the industry.

### **Vision**

Enhancing the sustainability of local and global community through research and innovation in applied Industrial information technology.

### **Mission**

The mission of Industrial Engineering – Information Systems program is to contribute to the global community through the provision of world-class education by :

1. Preparing student with solid educational experience of design, analysis, management system, and ability to conduct and implement of industrial integrated system, and ability to conduct and implement high impact research which enhance quality of life.
2. Educating student in the development of ability to analyze, design, implement, and manage a business innovatively through information technology especially in Asia business management and create readiness nationally and internationally with quality leadership.
3. Providing high-impact research to enhance the sustainability growth of local and international community.

### **Program Objectives**

The objectives of the program are:

1. To prepare student for the contemporary practice of general engineering with a broad knowledge of principles of mathematics, science, engineering, and use of computers.
2. To provide student with the methodological and computational skills to operate effectively through direct solving required in Industrial Engineering practice.
3. To provide student with solid foundation of system development skill and knowledge to applied skills and ability they need as system analyst.
4. To integrate students to a need for and to provide an ability to appreciate the global scope and contemporary issues within Industrial Engineering discipline especially in Information Technology.
5. To prepare students with skills and knowledge in depth information system related with industrial Information System.

### **Graduate Competencies**

1. Apply mathematics, science, and engineering.
2. Analyze, and interpret the data used in designing and conducting experiments.
3. Design a system, component, or process to meet desired needs within realistic constraints.
4. Identify, formulate, and solve problems through Industrial Engineering approaches.
5. Illustrate a good knowledge about the framework information system.

6. Analyze information requirements and business process.
7. Design systems that are aligned with organizational goals.
8. Propose implementation Technology as an enabler.
9. Propose applied industrial information systems solutions based on organization Strategy.

### **Prospective Career of The Graduates**

Professions will include all those related to Industrial Engineering and Computer (Information Systems) with the advantage for graduates of the double program being that they will have the increased benefit of combining their skills in two fields.

Graduates are employed in manufacturing and service industries. The type of works are doing are but not limited to:

1. Service Industry: Client Management, Commercial Banking and Real Estate, Financial Consulting, Health Systems, and Human Resource Consulting.
2. Manufacturing Industry: Inventory Management, Logistics, Operation Management, Production Management, and Warehousing.
3. Research and Development: Data Analysis, Environmental Protection and Preservation, and Human Factors Engineering.
4. Business and Management: Business Strategy, Investment Banking, Management Analysis, Project Management, and Business Development.
5. Information Technology: Corporate Information System, Database Design/Administration, E-Business, System Analyst & Design, Web development/Design, IT / IS consultant.
6. Education: Teaching and Research.

### **Curriculum**

The curriculum for the double study program Information Systems and Industrial Engineering is arranged in such a way that graduates have competences from each discipline as well as specific emphasis given to scientific skills in the field of corporate planning. The student is expected to finish this combination of two scientific fields in five years.

### Course Structure

Sem	Code	Course Name	SCU	Total
1	CHAR6013	Character Building: Pancasila	2	20
	ISYE6001	Introduction to Industrial System	2	
	SCIE6004	Physics I	4	
	MATH6045	Calculus I	4	
	ISYS6093	Information System Concept	4	
	COMP6088	Introduction to Information Technology	2	
	<b>English University Courses I</b>			
	ENGL6128	English in Focus	2	
	ENGL6130	English for Business Presentation	2	
2	CHAR6014	Character Building: Kewarganegaraan	2	20
	SCIE6005	Physics II	4/2	
	MATH6039	Calculus II	4	
	COMP6102	Algorithm and Programming	2/4	
	<b>English University Courses II</b>			
	ENGL6129	English Savvy	2	
	ENGL6131	English for Written Business Communication	2	
3	MATH6019	Calculus III	4	24
	SCIE6007	Industrial Chemistry	4	
	ISYS6123	Introduction to Database Systems	2/2	
	ISYS6197	Business Application Development	2/2	
	CHAR6015	Character Building: Agama	2	
	CIVL6030	Environmental Engineering	2	
	ACCT6133	Introduction to Financial Accounting	4	
4	ACCT6140	Financial Accounting	4	24
	ENTR6003	Entrepreneurship I	2	
	ISYS6188	Information System Analysis and Design	2/2	
	ISYS6209	User Experience	2/2	
	MATH6004	Linear and Discrete Mathematics	4	
	ISYS6186	Business Process Fundamental	4	
	STAT6003	Probability Theory	2	

Sem	Code	Course Name	SCU	Total
5	ISYE6039	Deterministic Optimization	4	24
	ISYS6163	Advanced Information System Analysis and Design*	4/2	
	ISYS6126	Enterprise System	4	
	ENGR6004	Technical Drawing	2/2	
	SCIE6017	Biology	2	
	<b>Elective Courses**</b>			
	CPEN6080	Electronic Devices	4/1	
	CPEN6079	Electric Circuit Theory	2/1	
	CPEN6099	Signal and System	4	
	CPEN6028	Actuators and Sensors	2	
	COMP6014	Introduction to Data Structure	2	
	CIVL6023	Fluid Mechanics and Hydraulics	4/1	
	CIVL6021	Statics	4/1	
	CIVL6022	Soil Mechanics	4/1	
	CIVL6025	Hydrology	2	
6	ISYS6153	Management Information System	2	24
	ENTR6004	Entrepreneurship II	2	
	ISYS6198	Data and Information Management	4	
	ISYE6068	Engineering Risk and Benefit Analysis	2	
	ISYS6191	Advanced in Business Application Development*	2/4	
	ISYE6059	Human-Integrated Systems	2/2	
	STAT6006	Applied Statistics	4	
7	ISYS6206	IS Strategy, Management and Acquisition	4	24
	STAT6096	Stochastic Processes	4	
	ENGR6005	Mechanics of Materials	2	
	ISYE6101	Production & Operation Analysis	4/2	
	ISYS6256	Information System Project Management	4	
	ISYS8066	Business Process Management	4	
8	STAT6021	Research Methodology	2	24
	ISYE6006	System Modeling and Simulation	4	
	ISYE6061	Manufacturing Process	4/2	
	ISYS6205	Enterprise Architecture	4	
	ISYS6264	Testing and System Implementation	4	
	ISYE6102	Quality Engineering	4	
9	ISYS8108	Knowledge Management	4	18
	ISYE6063	Industrial Practice	4	
	ISYS6284	Analytical Information Systems	4	
	ISYS6202	Social Informatics	4	
	ISYE6070	Facility Planning	2	
10	ISYE6028	Thesis	6	8
	ISYE6103	Special Topics	2	
<b>TOTAL CREDIT 210 SCU</b>				

\*) Entrepreneurship Embedded

\*\*) Elective Courses: Student should take minimum 4 Credits (on 5<sup>th</sup> semester)

**English University Courses:**

- ) For English University Courses I, student with score Binus University English Proficiency Test less than 500 will take English in Focus, and student with score test greater than or equal to 500 will take English for Business Presentation
- ) For English University Courses II, student with score Binus University English Proficiency Test less than 500 will take English Savvy, and student with score test greater than or equal to 500 will take English for Written Business Communication

**The Table of Prerequisite for Information Systems – Industrial Engineering (S1)**

Subject		Credits	Prerequisites		Credits
MATH6019	Calculus III	4	MATH6045	Calculus I	4
STAT6096	Stochastic Processes	4	STAT6003	Probability Theory	2
ISYE6102	Quality Engineering	4	STAT6006	Applied Statistics	4

**Student should pass all of these quality controlled examinations as listed below:**

No	Code	Course Name	Minimum Grade
1.	CHAR6013	Character Building: Pancasila	B
2.	ENTR6004	Entrepreneurship II	C
3.	ISYE6039	Deterministic Optimization*	C
4.	ISYE6059	Human-Integrated Systems	C
5.	ISYE6102	Quality Engineering*	C
6.	ISYE6101	Production & Operation Analysis	C
7.	ISYE6061	Manufacturing Process	C
8.	ISYE6070	Facility Planning*	C
9.	ISYS6126	Enterprise System	C
10.	ISYS6188	Information System Analysis and Design*	C
11.	ISYS6198	Data and Information Management*	C
12.	ISYS6256	Information Systems Project Management	C
13.	ISYS6206	IS Strategy, Management and Acquisition	C
14.	ISYS6205	Enterprise Architecture*	C

\*) Tutorial & Multipaper