Product Design Engineering

Introduction

With the underlying concepts of Industrial Engineering, PDE will give you a thorough fundamental knowledge in developing design concepts and exploiting appropriate materials to shape and color, and transforming them into an innovative and functional human-centered design product within realistic constraints. As a result, you will be able to develop automated or manual innovative and functional designs in the context of human appliances, car accessories, and automotive appliances.

Courses are designed to strengthen your understanding, knowledge, and ability to create and implement product design engineering as a whole to improve productivity and well-being. Computer Labs available to support your learning process are equipped with updated software (AutoCAD®, Pro/Engineer, CAM, CATIA®, Photoshop®, Illustrator®, ARENA®, Minitab®, LINDO/LINGO®, ErgoWEB), tools (molding and cutting 3D printer, drafting machine), and mechanical drawing table.

Vision

The 1st and the most prestigious and dynamic Product Design Engineering school in Indonesia by producing global citizens with Japanese educational philosophy.

Mission

To contribute to the global community through the provision of world-class education by :

1. Acknowledging all talents that positively contribute to the quality of life of Indonesians and the international community as global citizens.
2. Providing a solid educational experience through the diffusion and integration of knowledge of Product Design Engineering, and services to industries.
3. Educating students from a diverse background in the fundamental skills, knowledge and practice of Product Design Engineering in order to prepare them for a position in global industries and continue for advanced degrees in Product Design Engineering or related disciplines.
4. Providing research and professional services to streamline and optimize operations which contribute to the enhancement of the quality of life.
5. Having provided education with focus on not only skills and knowledge but also personal charm and dignity.

Program Objective

The objectives of the program are :

1. Utilize appropriate product design engineering methods and tools that are principal to work beneficially within their professions & communities.
2. Possess effective teamwork and leadership skills and commit to the standard of profession and ethical practice.
3. Continuously develop oneself to meet the evolving demands and increasing responsibilities of a successful career, to benefit the organization and society.

Student Outcomes

After completing the study, graduates are:

1. An ability to apply mathematics, science, and engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to identify, formulate, and solve industrial engineering problems.
5. An ability to function on multidisciplinary teams.
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively.
8. The broad education necessary to understand impact of industrial engineering solutions in a global, economic, environmental, and societal context
9. A recognition of the need for, and an ability to engage in life-long learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for industrial engineering practice.

Prospective Career

- Industrial Design Engineer
- Automotive and Parts Designer
- Product Design Engineering Consultant
- Industrial Engineer in Manufacturing and Service Industries
- Entrepreneur

Curriculum

The PDE curriculum is based on the curriculum of Industrial Engineering Bina Nusantara University which has been accredited with score of A from the BAN-PT (National Accreditation Board of Higher Education) and is aligned with the ABET (Accreditation Board for Engineering and Technology). This curriculum is then synergized with the curriculum and technology from ASO Architecture and Design College Japan. PDE is a four-year study program (8 semesters), in which the student must complete a total of 146 semester credit units. At the end of the third year, all students will take summer courses in ASO College Fukuoka Japan. Each year students will be encouraged to develop projects to learn about creative thinking and innovation patterns, and also to improve their communication skills as well as building their confidence during the independent exhibitions.

Course Structure

Sem	Code	Course Name	SCU	Total
1	ENGR6011	Mechanical drawing	2/2	20
	PDEN6001	Product Design Outline I	2	
	MATH6098	Calculus I	4	
	SCIE6031	Physics I	4	
	MATH6097	Chemistry	4	
	CHAR6016	Character Building: Pancasila	2	
2	CHAR6017	Character Building: Kewarganegaraan	2	20
	MATH6100	Calculus II	4	
	SCIE6035	Physics II	4/2	
	PDEN6002	Product Design Outline II	2	
	PDEN6005	Material Science	2	
	ACCT6169	Financial Accounting	2	
	ISYE6105	Leadership and Organizational Behaviour	2	
3	PDEN6004	Expression Technique I	0/3	21
	MATH6107	Calculus III	4	
	SCIE6037	Biology	2	
	MATH6108	Linear and Discrete Math	4	
	ISYE6107	Human-Integrated Systems	2/2	
	PDEN6003	Chromatology	4	
4	CHAR6018	Character Building: Agama	2	21
	STAT6113	Applied Statistics	4	
	STAT6108	Probability Theory	2	
	ISYE6108	Deterministic Optimization	4	
	PDEN6022	3D Design Visualization Technique I	2/2	
	PDEN6010	Image Manipulation Technique I	0/2	
	PDEN6008	Expression Technique II	0/3	
5	ISYE6110	Engineering Economy	2	20
	ISYE6106	Quality Engineering	4	
	PDEN6014	Computer Aided Design	0/2	
	PDEN6017	Computer Aided Manufacturing	0/2	
	PDEN6012	3D Design Visualization Technique II	2/2	
	PDEN6013	Image Manipulation Technique II	0/2	
	STAT6114	Stochastic Processes	4	

Sem	Code	Course Name	SCU	Total
6	ISYE6111	System Simulation and Modeling	4	20
	PDEN6016	Industrial Design I	0/4	
	COMM6094	Technical Communication	2	
	ENTR6057	Entrepreneurship I	2	
	ISYE6109	Production and Operation Analysis	4/2	
	PDEN6023	3D Design Visualization Technique III	0/2	
7	PDEN6007	Internship	4	16
	ENTR6058	Entrepreneurship II	2	
	PDEN6024	3D Design Visualization Technique IV*	0/4	
	PDEN6020	Industrial Design II*	0/4	
	PDEN6011	Mechanical Engineering	2	
8	PDEN6021	Major Design Project	0/8	8
TOTAL CREDIT 146 SCU				

**) Summer courses in Fukuoka – Japan*