Bachelor of Engineering in Digital Engineering

(Improved International Program) (Academic Year 2025)

Curriculum Name

English Bachelor of Engineering in Digital Engineering (International Program)

Name of Degree

Full Title in English Bachelor of Engineering in Digital Engineering

Abbreviated in English B.Eng. (Digital Engineering) (International Program)

Objectives

The Digital Engineering Program (DGE) is the modernized discipline that is strongly aimed to forge the student to the digital transformation of engineering fields incorporating with the classical engineering of electrical engineering, mechanical engineering and chemical engineering with the critical skill sets of digital technologies such as Industrial Internet of Things (IIoT), big data analytics, cloud computing, artificial intelligent (AI) and machine learning with evolutionary algorithms, blockchain, virtual reality (VR), augmented reality (AR), game programming, digital twins, digital manufacturing with robotics and smart automation and smart factory, mechatronics, 3D printing, Intelligent Software, Intelligent Embedded Systems, and Intelligent System Integration and to advance human-machine interactions. Awareness of unicorn enterprises is also the inevitable strategy relying upon the economic evaluation and innovative business models that this curriculum intends to persistently transplant to the students.

Program Highlights

1. The modernized multidisciplinary curriculum that incorporates digital technology with the classical engineering fields of electrical engineering, computer, mechanical, industrial and material engineering.

2. Encouragement for rapid prototype development from innovative ideas and fundamental knowledge with systematic thinking using Project-Based Learning (PBL) and Japanese's Monodzukuri (application-based) philosophy.

3. Fundamental skills of textual and visual coding and programming by Python and C programming language, Java script programming language with top-down paradigm and object-oriented paradigm.

4. Encouraging students' innovative idea and creative integration with digitalized environments in educational activities with hospitality and recreation atmosphere.

5. Problem-based solutions experienced in industries including TNI's partnerships with on-site training.

6. Opportunities for multinational scholarships and oversea training and employments.

Post-Graduation Career Opportunities

1. Autonomous and automotive industries.

2. Embedded system industries.

3. Energy and battery storage industries.

4. IoT and IIoT industries, smart factory, warehouse automation, robotic industries, smart manufacturing industries, logistic businesses.

5. Smart agricultural industries such as smart farming.

6. Biomedical industries

7. Computer vision enterprises and Metaverse

8. Game programming and virtual reality applications.

9. Data and strategy analysis of banking and business organizations

10. System Integrator in industrial automation and smart cities

11. Smart renewable energy businesses

12. Experts in digital, planning, and big data analysis

13. Academic researchers on computational matters related to artificial intelligence

14. Business Owners

Curriculum structure total 130 credits

Curriculum Structure

(1) General Education Minimum	**30 Credits**
1.1 Humanities and Social Sciences	3 Credits
1.2 Science and Mathematics	3 Credits
1.3 Languages	24 Credits
(2) Specific Course Minimum	**94 Credits**
2.1 Core Courses	27 Credits
2.2 Major Courses	48 Credits
2.3 Practice Courses	
(I) Cooperative study	7 Credits
(II) Projects and practices	7 Credits
2.4 Elective Courses	12 Credits
(3) Free Elective Course Minimum	**6 Credits**

Year 1/ First Semester

Course code	Course Title	Credits
DGE-105	Calculus I	3(3-0-6)
DGE-107	Computer Programs for Digital Engineers	3(2-3-6)
DGE-108	Fundamental Physics	3(2-3-6)
DGE-118	Product Drawing and Design	3(2-3-6)
ENE-101	Listening and Speaking for Specific Purposes	3(3-0-6)
JPE-101	Communicative Japanese 1	3(3-0-6)
	Total	**18(15-9-36)**

Year 1/ Second Semester

Course code	Course Title	Credits
MSE-101	Statistics and Probability	3(3-0-6)
DGE-106	Calculus II	3(3-0-6)
DGE-111	Mechanics for Digital Engineers	3(3-0-6)
DGE-115	Materials and Manufacturing Processes	3(3-0-6)
ENE-102	Critical Reading	3(3-0-6)
JPE-102	Communicative Japanese 2	3(3-0-6)
	Total	**18(18-0-36)**

Year 2/ First Semester

Course code	Course Title	Credits
DGE-114	Discrete Mathematics for Digital Engineering	3(3-0-6)
DGE-201	Digital Signal Processing	3(3-0-6)
DGE-204	Engineering Economics	3(3-0-6)
DGE-211	Data Analytics for E-Commerce	3(3-0-6)
XXX-XXX	Humanities and Social Science	3(3-0-6)
ENE-201	Professional Project Based Presentation	3(3-0-6)
JPE-201	Communicative Japanese 3	3(3-0-6)
	Total	**21(21-0-42)**

Year 2/ Second Semester

Course code	Course Title	Credits
DGE-212	Artificial Intelligence Techniques	3(2-3-6)
DGE-213	Fundamental Electrical Circuit	3(3-0-6)
DGE-301	Machine Learning	3(3-0-6)
DGE-306	Big Data Engineering	3(3-0-6)
ENE-202	Business Writing	3(3-0-6)
JPE-202	Communicative Japanese 4	3(3-0-6)
	Total	**18(17-3-36)**

Year 3/ First Semester

Course code	Course Title	Credits
DGE-302	Mechatronics	3(2-3-6)
DGE-313	Intelligent Human-Computer Interaction	3(3-0-6)
DGE-314	Internet of Things	3(3-0-6)
DGE-312	Systems Engineering	3(3-0-6)
DGE-413	Project Management	3(3-0-6)
DGE-XXX	Approved Elective	3(3-0-6)
	Total	**18(17-3-36)**

Year 3/ Second Semester

Course code	Course Title	Credits
DGE-303	Fog and Cloud Computing	3(3-0-6)
DGE-307	Industrial Automation Systems	3(3-0-6)
DGE-308	Industrial Robotics	3(3-0-6)
DGE-311	Startup Entrepreneurship and Innovation Managements	3(3-0-6)
DGE-412	Computer Networks and Communication Systems	3(3-0-6)
DGE-XXX	Approved Elective	3(3-0-6)
DGE-491	Pre-Cooperative or Training	1(1-0-2)
	Total	**19(19-0-38)**

Year 4/ First Semester

Course code	Course Title	Credits
DGE-XXX	Approved Elective	3(3-0-6)
DGE-XXX	Approved Elective	3(3-0-6)
XXX-XXX	Free Elective	3(3-0-6)
XXX-XXX	Free Elective	3(3-0-6)
	Total	**12(12-0-24)**

Year 4/ Second Semester

Course code	Course Title	Credits
DGE-496	Cooperative Education	6(0-40-10)
	Total	**6(0-40-10)**

สถาบันเทคโนโลยีไทย-ญี่ปุ่น
ประมาณการค่าธรรมเนียมการศึกษาหลักสูตรนานาชาติ
หลักสูตรวิศวกรรมศาสตรบัณฑิต สาขาวิชาวิศวกรรมดิจิทัล

สำหรับนักศึกษาทีมีสัญชาติไทย

โครงสร้างหลักสูตร รวม 130 หน่วยกิต

รายการ	ชั้นปีที่ 1		ชั้นปีที่ 2		ชั้นปีที่ 3		ชั้นปีที่ 4	
	เทอม 1	เทอม 2	เทอม 1	เทอม 2	เทอม 1	เทอม 2	เทอม 1	เทอม 2
1) ค่าขึ้นทะเบียนนักศึกษา	10,000	-	-	-	-	-	-	-
2) ค่าบำรุงการศึกษา	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
3) ค่าหน่วยกิตลงทะเบียน								
รายวิชาทฤษฎี	42,000	50,400	58,800	47,600	50,400	53,200	33,600	-
วิชาปฏิบัติการ/สหกิจศึกษา/ฝึกงาน	15,000	-	-	5,000	-	-	-	30,000
ค่าธรรมเนียม / เทอม	**74,000**	**57,400**	**65,800**	**59,600**	**57,400**	**60,200**	**40,600**	**37,000**
ค่าธรรมเนียม / ปี	**131,400**		**125,400**		**117,600**		**77,600**	
ค่าธรรมเนียมทั้งหมดโดยประมาณ	**452,000**							

หมายเหตุ **1. ข้อมูลดังกล่าว เป็นเพียงการประมาณค่าใช้จ่ายเท่านั้น ทั้งนี้ขอสงวนสิทธิ์ในการเปลี่ยนแปลงข้อมูลตามประกาศและนโยบายของสถาบัน**

2. รายละเอียดวิชาการลงทะเบียน แผนการศึกษา ค่าใช้จ่ายต่างๆ สามารถตรวจสอบจากคู่มือนักศึกษา ของปีการศึกษาที่เข้าศึกษา

3. ค่าใช้จ่ายนี้จะต้องชำระเป็นสกุลเงินบาท