Bachelor of Engineering in Digital Engineering
(New International Program) (Academic Year 2018)

Name of Program (Curriculum)
Bachelor of Engineering in Digital Engineering

Name of Degree
Bachelor of Engineering (Digital Engineering)
B.Eng. (Digital Engineering) (International Program)

Program Objectives
The Digital Engineering Program (DGE) will impart Digital Engineers with the critical skills needed in the following areas: Economics, Engineering, Novel Business Model, Digital Engineering and Artificial Intelligence. The program will prepare Digital Engineers for Industry 4.0, equipped with the ability to design, fabricate, assemble, install and integrate computer hardware, software and control systems. They will be provided with the "Digital Literacy" skills needed to apply engineering technology to improve automation systems and IoT; covering Intelligent Software, Intelligent Embedded Systems, and Intelligent System Integration, including for first stage and emerging S-curve industries and enterprises.

TNI is confident that Digital Engineers who graduates from our DGE Program will be equipped with the requisite skills desired by companies involved in Cloud Computing, Big Data, Mobile Application and Business Intelligence Solutions.

Strengths of the Program
1. This is the first Multidisciplinary curriculum that incorporates Electrical, Communication, Computer, AI, and Emerging Technology studies.

2. Engineering education and training aimed for the future; from basic knowledge, applications, prototyping or developing products, inside and outside the classroom, to creating innovations using Project-Based Learning (PBL) and Japanese Monodzukuri philosophy.

3. Adaptive techniques in teaching and practical experience on design, fabrication, assembly, installation and integration computer hardware, software and control system, all offered within a comfortable learning environment.

4. Learning to solve real-life research problems, which are found from industry and TNI partners, through Co-operative and Training at the workplace.

5. Develop excellent communication skills in English, Japanese and IoT.

Post-Graduation Career Opportunities

(1) Engineer capable of working in the field of IoT and Embedded system

(2) Artificial Intelligence (AI) Engineer in various industries or intelligent businesses

(3) Engineer and AI Programmer for national and international enterprises

(4) System Integrator Engineer

(5) Expertise in digital, planning and big data analysis

(6) Academia and researcher on computational matters related to artificial intelligence

Curriculum Structure

☒ **General Education**	**no less than**	**34**	**Credits**
Humanities		3	Credits
Social Sciences		3	Credits
Science and mathematics		4	Credits
Languages		24	Credits
☒ **Specialized Courses**		**93**	**Credits**
☒ Core courses		26	Credits
☒ Major courses		51	Credits
☐ Minor courses			Credits
Practice Courses			
Cooperative study		7	Credits
Project and practices		7	Credits
Major Elective Courses			
Cooperative study		9	Credits
Project and practices		9	Credits
☒ **Free Elective Courses**	**no less than**	**6**	Credits
Total		**133**	**Credits**

1. **Study Plan**

Year 1 / Semester 1

Course Number	Course Title	Credits
DGE-101	Computer Programming for Digital Engineers	3 (3-0-6)
DGE-102	Computer Programming for Digital Engineers Laboratory	1 (0-3-2)
DGE-103	Fundamental Physics	3 (3-0-6)
DGE-104	Fundamental Physics Laboratory	1 (0-3-2)
DGE-105	Calculus I	3 (3-0-6)
ENE-101	Listening and Speaking for Specific Purposes	3 (3-0-6)
JPE-101	Communicative Japanese 1	3 (3-0-6)
Total		**17 (15-6-34)**

Year 1 / Semester 2

Course Number	Course Title	Credits
DGE-110	Engineering Graphics and Designs	3 (2-3-6)
DGE-111	Mechanics for Digital Engineers	3 (3-0-6)
DGE-106	Calculus II	3 (3-0-6)
DGE-112	Materials and Devices for Digital Engineers	3 (3-0-6)
DGE-113	Exploratory of Digital Engineering and Artificial Intelligence	1 (1-0-2)
ENE-102	Critical Reading	3 (3-0-6)
JPE-102	Communicative Japanese 2	3 (3-0-6)
Total		**19 (18-3-38)**

Year 2 / Semester 1

Course Number	Course Title	Credits
DGE-201	Digital Signal Processing	3 (3-0-6)
DGE-202	Artificial Intelligence Technique I: Software-Based Approaches	3 (2-3-6)
DGE-203	Wired and Wireless Communication System	3 (2-3-6)
DGE-204	Engineering Economics	3 (3-0-6)
ENE-201	Professional Project Based Presentation	3 (3-0-6)
JPE-201	Communicative Japanese 3	3 (3-0-6)
Total		**18 (16-6-36)**

Year 2 / Semester 2

Course Number	Course Title	Credits
DGE-206	Numerical Methods and Discrete Mathematics	3 (3-0-6)
DGE-207	Probability and Statistics for Digital Engineers	3 (3-0-6)
DGE-208	Artificial Intelligence Technique II: Hardware-Based Approaches	3 (2-3-6)
DGE-209	Data Analytics	3 (2-3-6)
ENE-202	Business Writing	3 (3-0-6)
JPE-202	Communicative Japanese 4	3 (3-0-6)
Total		**18 (16-6-36)**

Year 3 / Semester 1

Course Number	Course Title	Credits
DGE-301	Machine Learning	**3 (3-0-6)**
DGE-302	Mechatronics	**3 (2-3-6)**
DGE-303	Fog and Cloud Computing	**3 (3-0-6)**
DGE-304	Intelligent Human-Computer Interaction	**3 (2-3-6)**
DGE-305	Intelligent Software	**3 (3-0-6)**
DGE-306	Big Data Engineering	**3 (3-0-6)**
Total		**18 (16-6-36)**

Year 3 / Semester 2

Course Number	Course Title	Credits
DGE-307	Industrial Automation Systems	**3 (3-0-6)**
DGE-308	Industrial Robotics	**3 (3-0-6)**
DGE-309	System Integration	**3 (2-3-6)**
DGE-310	Internet-of-Things	**3 (2-3-6)**
DGE-311	Startup Entrepreneurship and Innovation Managements	**3 (3-0-6)**
DGE-491	Pre-Cooperative or Training	**1(1-0-2)**
Total		**16 (14-6-32)**

Year 4 / Semester 1

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

Year 4 / Semester 2

Course Number	Course Title	Credits
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Free Electives	**3 (3-0-6)**
DGE-XXX	Free Electives	**3 (3-0-6)**
HUE-XXX	General Education (Selected Social Sciences courses)	**3 (3-0-6)**
SOE-XXX	General Education (Selected Humanities courses)	**3 (3-0-6)**
Total		**21 (21-0-42)**

Study Plan for Project and Practices Students

Year 1 / Semester 1

Course Number	Course Title	Credits
DGE-101	Computer Programming for Digital Engineers	3 (3-0-6)
DGE-102	Computer Programming for Digital Engineers Laboratory	1 (0-3-2)
DGE-103	Fundamental Physics	3 (3-0-6)
DGE-104	Fundamental Physics Laboratory	1 (0-3-2)
DGE-105	Calculus I	3 (3-0-6)
ENE-101	Listening and Speaking for Specific Purposes	3 (3-0-6)
JPE-101	Communicative Japanese 1	3 (3-0-6)
Total		**17 (15-6-34)**

Year 1 / Semester 2

Course Number	Course Title	Credits
DGE-110	Engineering Graphics and Designs	3 (2-3-6)
DGE-111	Mechanics for Digital Engineers	3 (3-0-6)
DGE-106	Calculus II	3 (3-0-6)
DGE-112	Materials and Devices for Digital Engineers	3 (3-0-6)
DGE-113	Exploratory of Digital Engineering and Artificial Intelligence	1 (1-0-2)
ENE-102	Critical Reading	3 (3-0-6)
JPE-102	Communicative Japanese 2	3 (3-0-6)
Total		**19 (18-3-38)**

Year 2 / Semester 1

Course Number	Course Title	Credits
DGE-201	Digital Signal Processing	**3 (3-0-6)**
DGE-202	Artificial Intelligence Technique I: Software-Based Approaches	**3 (2-3-6)**
DGE-203	Wired and Wireless Communication System	**3 (2-3-6)**
DGE-204	Engineering Economics	**3 (3-0-6)**
ENE-201	Professional Project Based Presentation	**3 (3-0-6)**
JPE-201	Communicative Japanese 3	**3 (3-0-6)**
Total		**18 (16-6-36)**

Year 2 / Semester 2

Course Number	Course Title	Credits
DGE-206	Numerical Methods and Discrete Mathematics	**3 (3-0-6)**
DGE-207	Probability and Statistics for Digital Engineers	**3 (3-0-6)**
DGE-208	Artificial Intelligence Technique II: Hardware-Based Approaches	**3 (2-3-6)**
DGE-209	Data Analytics	**3 (2-3-6)**
ENE-202	Business Writing	**3 (3-0-6)**
JPE-202	Communicative Japanese 4	**3 (3-0-6)**
Total		**18 (16-6-36)**

Year 3 / Semester 1

Course Number	Course Title	Credits
DGE-301	Machine Learning	3 (3-0-6)
DGE-302	Mechatronics	3 (2-3-6)
DGE-303	Fog and Cloud Computing	3 (3-0-6)
DGE-304	Intelligent Human-Computer Interaction	3 (2-3-6)
DGE-305	Intelligent Software	3 (3-0-6)
DGE-306	Big Data Engineering	3 (3-0-6)
Total		**18 (16-6-36)**

Year 3 / Semester 2

Course Number	Course Title	Credits
DGE-307	Industrial Automation Systems	3 (3-0-6)
DGE-308	Industrial Robotics	3 (3-0-6)
DGE-309	System Integration	3 (2-3-6)
DGE-310	Internet-of-Things	3 (2-3-6)
DGE-311	Startup Entrepreneurship and Innovation Managements	3 (3-0-6)
DGE-491	Pre-Cooperative or Training	1(1-0-2)
Total		**16 (14-6-32)**

Year 3 / Semester 3 (Summer)

Course Number	Course Title	Credits
DGE-493	Digital Engineering Practice	1 (1-40-10)
Total		**1 (1-40-10)**

Year 4 / Semester 1

Course Number	Course Title	Credits
DGE-492	Monodzukuri Project 1	**2 (0-6-4)**
HUE-XXX	General Education (Selected Social Sciences courses)	**3 (3-0-6)**
SOE-XXX	General Education (Selected Humanities courses)	**3 (3-0-6)**
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Free Electives	**3 (3-0-6)**
Total		**17 (15-6-34)**

Year 4 / Semester 2

Course Number	Course Title	Credits
DGE-494	Monodzukuri Project 2	**3 (0-9-6)**
DGE-XXX	Approved Electives	**3 (3-0-6)**
DGE-XXX	Free Electives	**3 (3-0-6)**
Total		**9 (6-9-18)**

Thai-Nichi Institute of Technology

Tuition Fees for Bachelor's Degree (International Program)

Bachelor of Engineering Program in Digital Engineering

Total Credit Requirement   133 Credits

List	First Year		Second Year		Third Year			Fourth Year	
	Semester I	Semester II	Semester I	Semester II	Semester I	Semester II	Summer	Semester I	Semester II
1) Matriculation Fee / ค่าขึ้นทะเบียนนักศึกษา	10,000	-	-	-	-	-	-	-	-
2) Education Fee / ค่าบำรุงการศึกษา	7,000	7,000	7,000	7,000	7,000	7,000	5,000	7,000	7,000
3) Registration Fee / ค่าหน่วยกิตลงทะเบียน									
- Lecture / รายวิชาทฤษฎี	42,000	50,400	44,800	44,800	44,800	39,200	-	42,000	16,800
- Lab / Co-operative Education / Internship	10,000	5,000	10,000	10,000	10,000	10,000	5,000	10,000	15,000
Estimates / Semester	69,000	62,400	61,800	61,800	61,800	56,200	10,000	59,000	38,800
Estimates / Year	131,400		123,600		128,000			97,800	
Estimates / Total Tuition Fee	480,800								

Remark 1. These estimates are subject to be changed without prior notice. / ข้อมูลดังกล่าว เป็นเพียงการประมาณค่าใช้จ่ายเท่านั้น ทั้งนี้ขอสงวนสิทธิ์ในการเปลี่ยนแปลงข้อมูลตามประกาศและนโยบายของสถาบัน โดยไม่แจ้งให้ทราบล่วงหน้า

 2. Further details can be found in the student manual. / รายละเอียดวิชาการลงทะเบียน แผนการศึกษา ค่าใช้จ่ายต่างๆ สามารถตรวจสอบจากคู่มือนักศึกษา ของปีการศึกษาที่เข้าศึกษา