BACHELOR OF SCIENCE IN INFORMATICS FOR DIGITAL ECONOMY (INTERNATIONAL PROGRAM)

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TCAS 64

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HIGHLIGHT COURSES

- Foundation of Computer Programming
- Cyber Security for Digital Economy
- DevOps
- Modern Information Technology
- Big Data
- Artificial Intelligence

- Contemporary Programming Framework
- Mathematics for Digital Economy
- Digital Media Design and Development
- Mobile Application Design
- Digital Economy

- Fundamental Computer Infrastructure and Networking
- User-Centered Design
- Internet of Things and Edge Computing
- Enterprise Resource Planning
- Data Analytics

Activity

Variety of activities for I-BIT students both on-campus and cultural field trips for building leadership and teamwork.

Training

Co-curriculum trainings in I-BIT program to equip our students with practical skills supported by state-of-the-art equipment and professional consultants.

Learning

Learning from academics, experts, and specialists through laboratories, contemporary learning media, and computer resources.

ITD KMUTNB

1518 Faculty of Information Technology and Digital Innovation, KMUTNB
Pracharat 1 Road, Wongsawang, Bangsue, Bangkok 10800
02-555-2000 Ext. 2711, 2701   amonwan.r@itd.kmutnb.ac.th

COURSE SYLLABUS

B.SC. IN INFORMATICS FOR DIGITAL ECONOMY (INTERNATIONAL PROGRAM)

I-BIT

I-BIT ADMISSION 2021

PERIOD OF ADMISSION

TCAS 1: PORTFOLIO ➡️ **1 OCTOBER – 14 DECEMBER 2020**

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NON–TCAS ADMISSION

– No minimum GPAX requirement

– Available for Thai and Non–Thai students

– Available for Vocational program students

➡️

1st ROUND: 14 DECEMBER 2020 – 8 FEBRUARY 2021

2nd ROUND: 15 FEBRUARY – 12 APRIL 2021

3rd ROUND: 16 APRIL – 15 MAY 2021

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TCAS 2: QUOTA

(O–NET and GAT/PAT)

➡️

1 MARCH – 20 APRIL 2021

Apply: Online Admission System

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TCAS 3: ADMISSION 1 ➡️

7 – 15 MAY 2021

Apply: Online Admission System

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REMARKS

*Admission period: 1 October 2020 – 15 May 2021

*Tuition fees payment period: 3 March – 21 June 2021

**Semester start (1/2021): 12 July 2021

Bachelor of Science Program in Informatics for Digital Economy (International Program)

Institution   King Mongkut's University of Technology North Bangkok

Abbreviation   KMUTNB

Faculty/Department   Faculty of Information Technology and Digital Innovation, Department of Information Technology

Campus   Bangkok

1. General Information

    1.1 Title of the program: Bachelor of Science Program in Informatics for Digital Economy (International Program)

    1.2 Title of the degree: Bachelor of Science (Informatics for Digital Economy)

    1.3 Abbreviation: B.Sc. (Informatics for Digital Economy)

    1.4 Major Subject: None

    1.5 Credit Hours: 129 credits

    1.6 Class Sessions: Office Hours 09.00 hrs. – 16.00 hrs. (weekdays)

    1.7 Tuition fees/semester: 45,000 baht per semester

    1.8 Course Length: 4 academic years (8 regular semesters)

Curriculum

2. **Curriculum.** The curriculum consists of the following structures:

2.1 General Education Courses	31	credits
A. Language Courses	12	credits
B. Science and Mathematics Courses	6	credits
C. Social Science and Humanities Courses	9	credits
D. Sports and Recreation Courses	1	credit
E. Integration Courses	3	credits
2.2 Specialized Education Courses	89	credits
(1) Foundation of Informatics Courses	*30*	*credits*
(2) Informatics and Digital Economy Courses	*44*	*credits*
A. General Project		
- Co-required courses	36	credits
- General Project Required courses	8	credits
B. Co-operative Education		
- Co-required course	36	credits
- Co-operative Education Required Course	8	credits
(3) Specialized Field Elective Course	*15*	*credits*
2.3 Free elective courses	9	credits
Total number of credits	129	credits

3. Details of Courses in each structure

3.1 General Education Courses   31 credits

A. Language Courses   12 credits

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	070153101	English Listening and Speaking Skills	3(3-0-6)
2.	070153102	English Reading Skills	3(3-0-6)
3.	070153103	English Writing Skills	3(3-0-6)
4.	070153104	English Skills for Entrepreneur	3(3-0-6)

B. Science and Mathematics Courses   6 credits

Please choose the following courses:

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	040423001	Environment and Energy	3(3-0-6)
2.	040503001	Statistics in Everyday Life	3(3-0-6)

In the other direction, You can choose other course from Science and Mathematics Courses which is categorized in General Education Courses that university opens course for bachelor students (international program) and this condition will be approved by Department of Information Technology.

C. Social Science and Humanities Courses   9 credits

Please choose the following courses:

No.	Course Code	Course Title	Credits
1.	080203906	Economics for Individual Development	3(3-0-6)
2.	080203909	ASEAN Economic, Political and Cultural Studies	3(3-0-6)
3.	080303104	Psychology for Work	3(3-0-6)
4.	080303201	Effective Speech	3(3-0-6)
5.	080303606	Systematic and Creative Thinking	3(3-0-6)

In the other direction, You can choose other course from Social Science and Humanities Courses which is categorized in General Education Course that university opens course for bachelor students (international program) and this condition will be approved by Department of Information Technology.

D. Sports and Recreation Course   1 credit

Please choose the following course:

No.	Course Code	Course Title	Credit
1.	080303503	Badminton	1(0-2-1)

In the other direction, You can choose other course from Sports and Recreation Courses which is categorized in General Education Course that university opens course for bachelor students (international program) and this condition will be approved by Department of Information Technology.

E. Integration Courses   3 credits

No.	Course Code	Course Title	Credits
1.	040003004	Design Thinking	3(3-0-6)

3.2 Specialized Education Courses   89   credits
(1) Foundation of Informatics Courses   30   credits

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	070153601	Foundation of Computer Programming	3(2-2-5)
2.	070153602	Contemporary Programming Framework	3(2-2-5)
3.	070153603	Fundamental Computer Infrastructure and Networking	3(2-2-5)
4.	070153604	Cybersecurity for Digital Economy	3(2-2-5)
5.	070153605	Foundation of Big Data	3(2-2-5)
6.	070153606	User-Centered Design	3(2-2-5)
7.	070153607	Digital Economy	3(2-2-5)
8.	070153608	Data Analytics	3(2-2-5)
9.	070153609	Mathematics for Digital Economy I	3(2-2-5)
10.	070153610	Mathematics for Digital Economy II	3(2-2-5)

(2) Informatics and Digital Economy Courses   44   credits
A. Co-required Courses   36   credits

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	070153701	DevOps I	3(2-3-5)
2.	070153702	DevOps II	3(2-3-5)
3.	070153703	Digital Media Design and Development	3(2-3-5)
4.	070153704	Internet of Things and Edge Computing for Smart Business	3(2-3-5)
5.	070153705	Modern Information Technology Infrastructure	3(2-3-5)
6.	070153706	Mobile Application Design	3(2-3-5)
7.	070153707	Introduction to Enterprise Resource Planning	3(3-0-6)
8.	070153708	Artificial Intelligence	3(3-0-6)
9.	070153709	Big Data	3(2-2-5)
10.	070153710	Data Visualization	3(2-3-5)
11.	070153711	Entrepreneurship Skills	3(3-0-6)
12.	070153712	Digital Project Management	3(3-0-6)

B. General Project Required Courses   8   credits

No.	Course Code	Course Title	Credits
1.	070153713	Informatics for Digital Economy Project I	3(2-3-5)
2.	070153714	Informatics for Digital Economy Project II	3(2-3-5)
3.	070153715	Training	2(240 hours)

C. Co-operative Education Required Course   8   credits

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	070153716	Co-operative Education Preparation	2(0-4-2)
2.	070153717	Co-operative Education	6(540 hours)

(3) Specialized Field Elective Course   15   credits

Please choose the following courses:

(Lecture – Practice – Independent Study)

No.	Course Code	Course Title	Credits
1.	070153801	Business Intelligence	3(3-0-6)
2.	070153802	Blockchain for Autonomous Business	3(2-2-5)
3.	070153803	Agile Software Engineering	3(3-0-6)
4.	070153804	Modern Data Processing Platform	3(2-3-5)
5.	070153805	Virtual Environment Design and Development	3(2-3-5)
6.	070153806	Digital Business for Aging Society	3(3-0-6)
7.	070153807	Foundation of Management	3(3-0-6)
8.	070153808	Digital Innovation	3(3-0-6)
9.	070153809	Digital Business Strategy and Marketing	3(3-0-6)
10.	070153810	Laws in Digital Economy	3(3-0-6)
11.	070153811	Seminar in Digital Economy	3(1-4-4)
12.	070153812	Seminar in Business Informatics	3(1-4-4)

3.3 Free Elective Course   9   credits

Student can choose the courses in Bachelor of Science Program in Informatics for Digital Economy (International Program) according to university opens course.

Study Plan

Informatics for Digital Economy (International Program)

(General Project and Co-operative Education)

Year 1

First semester

No.	Course Code	Course Title	Credits
1	070153601	Foundation of Computer Programming	3(2-2-5)
2	070153609	Mathematics for Digital Economy I	3(2-2-5)
3	070153101	English Listening and Speaking Skills	3(3-0-6)
4	040xxxxxx	Science and Mathematics Elective Course	3(3-0-6)
5	040xxxxxx	Science and Mathematics Elective Course	3(3-0-6)
6	080xxxxxx	Social Science and Humanities Elective Course	3(3-0-6)
7	080303xxx	Sports and Recreation Elective Course	1(0-2-1)
		Total credits	19(16-6-35)

Year 1

Second semester

No.	Course Code	Course Title	Credits
1	070153602	Contemporary Programming Framework	3(2-2-5)
2	070153603	Fundamental Computer Infrastructure and Networking	3(2-2-5)
3	070153610	Mathematics for Digital Economy II	3(2-2-5)
4	070153102	English Reading Skills	3(3-0-6)
5	080xxxxxx	Social Science and Humanities Elective Course	3(3-0-6)
		Total credits	15(12-6-27)

Year 2

First semester

No.	Course Code	Course Title	Credits
1	070153604	Cybersecurity for Digital Economy	3(2-2-5)
2	070153701	DevOps I	3(2-3-5)
3	070153703	Digital Media Design and Development	3(2-3-5)
4	040003004	Design Thinking	3(3-0-6)
5	070153103	English Writing Skills	3(3-0-6)
6	xxxxxxxxx	Free Elective Course	3(3-0-6)
		Total credits	18(15-8-33)

Year 2

Second semester

No.	Course Code	Course Title	Credits
1	070153605	Foundation of Big Data	3(2-2-5)
2	070153606	User-Centered Design	3(2-2-5)
3	070153702	DevOps II	3(2-3-5)
4	070153704	Internet of Things and Edge Computing for Smart Business	3(2-3-5)
5	070153104	English Skills for Entrepreneur	3(3-0-6)
6	xxxxxxxxx	Free Elective Course	3(3-0-6)
		Total credits	18(14-10-32)

Informatics for Digital Economy (International Program)

(General Project and Co-operative Education)

Year 3

First semester

No.	Course Code	Course Title	Credits
1	070153607	Digital Economy	3(2-2-5)
2	070153608	Data Analytics	3(2-2-5)
3	070153705	Modern Information Technology Infrastructure	3(2-3-5)
4	070153706	Mobile Application Design	3(2-3-5)
5	070153xxx	Specialized Field Elective Course	3(x-x-x)
6	070153xxx	Specialized Field Elective Course	3(x-x-x)
		Total credits	18(8-10-20)

Informatics for Digital Economy (International Program)

(General Project)

Year 3

Second semester

No.	Course Code	Course Title	Credits
1	070153707	Introduction to Enterprise Resource Planning	3(3-0-6)
2	070153708	Artificial Intelligence	3(3-0-6)
3	070153709	Big Data	3(2-2-5)
4	070153xxx	Specialized Field Elective Course	3(x-x-x)
5	070153xxx	Specialized Field Elective Course	3(x-x-x)
6	080xxxxxx	Social Science and Humanities Elective Course	3(3-0-6)
		Total credits	18(11-2-23)

Informatics for Digital Economy (International Program)

(General Project)

Year 3

Summer Term

No.	Course Code	Course Title	Credits
1	070153715	Training	2(240 hours)
		Total credits	2(240 hours)

Informatics for Digital Economy (International Program)
(General Project)

Year 4
First semester

No.	Course Code	Course Title	Credits
1	070153710	Data Visualization	3(2-3-5)
2	070153711	Entrepreneurship Skills	3(3-0-6)
3	070153712	Digital Project Management	3(3-0-6)
4	070153713	Informatics for Digital Economy Project I	3(2-3-5)
		Total credits	**12(10-6-22)**

Informatics for Digital Economy (International Program)
(General Project)

Year 4
Second semester

No.	Course Code	Course Title	Credits
1	070153714	Informatics for Digital Economy Project II	3(2-3-5)
2	070153xxx	Specialized Field Elective Course	3(x-x-x)
3	xxxxxxxxx	Free Elective Course	3(3-0-6)
		Total credits	**9(5-3-11)**

Informatics for Digital Economy (International Program)

(Co-operative Education)

Year 3

Second semester

No.	Course Code	Course Title	Credits
1	070153707	Introduction to Enterprise Resource Planning	3(3-0-6)
2	070153708	Artificial Intelligence	3(3-0-6)
3	070153709	Big Data	3(2-2-5)
4	070153xxx	Specialized Field Elective Course	3(x-x-x)
5	070153xxx	Specialized Field Elective Course	3(x-x-x)
6	070153716	Co-operative Education Preparation	2(0-4-2)
7	080xxxxxx	Social Science and Humanities Elective Course	3(3-0-6)
		Total credits	20(8-6-25)

Informatics for Digital Economy (International Program)

(Co-operative Education)

Year 4

First Semester

No.	Course Code	Course Title	Credits
1	070153717	Co-operative Education	6(540 hours)
		Total credits	6(540 hours)

Informatics for Digital Economy (International Program)

(Co-operative Education)

Year 4

Second semester

No.	Course Code	Course Title	Credits
1	070153710	Data Visualization	3(2-3-5)
2	070153711	Entrepreneurship Skills	3(3-0-6)
3	070153712	Digital Project Management	3(3-0-6)
4	070153xxx	Specialized Field Elective Course	3(x-x-x)
5	xxxxxxxx	Free Elective Course	3(3-0-6)
		Total credits	15(11-3-23)

Course Description

Course Code : 040003004

Course Title : Design Thinking

Credit : 3(3-0-6)

Prerequisite : None

Descriptions Design thinking for designers to develop products, services, and strategies to innovations; human-centered design via following processes: empathy, define, ideate, prototype, and test; team-working and working environment to support creativity and ideas.

Course Code : 040423001

Course Title : Environment and Energy

Credit : 3(3-0-6)

Prerequisite : None

Descriptions Relationship between organisms and their environment; major pollution problems and effect to human health and welfare, plants, animals, and environment; introduction to environmental management; roles of energy in life; renewable energy and energy conservation.

Course Code : 040503001

Course Title : Statistics in Everyday Life

Credit : 3(3-0-6)

Prerequisite : None

Descriptions Overview statistics in everyday life; problem solving systems using statistically logical skills; the use of statistics in social science, humanity, government, sports, education, environment, advertisement, finance, epidemiology, or others.

Course Code : 070153101

Course Title : English Listening and Speaking Skills

Credit : 3(3-0-6)

Prerequisite : None

Descriptions English pronunciation; different English dialects; phonetics symbols for English language; syllable stress in word; word stress in sentence; rhythm in speaking English; case studies on English conversation; case studies on general English articles; case studies on

business articles; case studies on academic articles; case studies on articles in information technology and digital economy.

Course Code : 070153102
Course Title : English Reading Skills
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions English sentence structures; English tenses; English sentence analysis; fundamental of phonetics; English elocution; reading for summarization; case studies on general English articles; case studies on business articles; case studies on academic articles; case studies on articles in information technology and digital economy.

Course Code : 070153103
Course Title : English Writing Skills
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions English essay wrting; general English writing style; business writing style; academic writing style; case studies on general English articles; case studies on business articles; case studies on academic articles; case studies on articles in information technology and digital economy.

Course Code : 070153104
Course Title : English Skills for Entrepreneur
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions English letter writing; English e-mail writing; chat message conversation in English; interviewing in English; presentation in English; pitching; distant communication in English; ad hoc problem solving in English.

Course Code : 070153601
Course Title : Foundation of Computer Programming
Credit   : 3(2-2-5)
Prerequisite : None
Descriptions Statement; data type; variable; constant value; expression operator; conditional statement; selection and loop; array; pointer; function; reading and writing files; programming practices; applications for informatics.

Course Code : 070153602

Course Title : Contemporary Programming Framework

Credit : 3(2-2-5)

Prerequisite : 070153601 Foundation of Computer Programming

<u>Descriptions</u> Integrated development environment; programming framework for web and information system development; programming framework for scientific computing; programming framework for machine learning.

Course Code : 070153603

Course Title : Fundamental Computer Infrastructure and Networking

Credit : 3(2-2-5)

Prerequisite : None

<u>Descriptions</u> Foundation in computer network system; client-server architecture; Linux operating system; Linux file system; Linux access management; Linux process and service management; Linux software package management; Linux network management.

Course Code : 070153604

Course Title : Cybersecurity for Digital Economy

Credit : 3(2-2-5)

Prerequisite : 070153603 Fundamental Computer Infrastructure and Networking

<u>Descriptions</u> Ethics; cybersecurity concepts; cybersecurity challenges for digital economy; principles of cybersecurity architecture; cybersecurity of networks, systems, applications and data; incident response; security implications for adoption of emerging technologies; cybersecurity law and regulation; cybersecurity best practice; cybersecurity framework; cybersecurity standard.

Course Code : 070153605

Course Title : Foundation of Big Data

Credit : 3(2-2-5)

Prerequisite : 070153602 Contemporary Programming Framework

<u>Descriptions</u> Data storage structure; data engineering; concepts of database systems; database system architecture; information modeling; database design and case studies; relational algebra and concept of Structured Query Language (SQL); query processing; transaction management; database integrity and security; database management.

Course Code : 070153606
Course Title : User-Centered Design
Credit   : 3(2-2-5)
Prerequisite : None
<u>Descriptions</u> User-centered design process; user experience design; design thinking; human abilities; user research methods; design ideation techniques; prototyping techniques; design validation techniques.

Course Code : 070153607
Course Title : Digital Economy
Credit   : 3(2-2-5)
Prerequisite : None
<u>Descriptions</u> Characteristics of digital economy; digital transformation; information technology and business transformation; business and technology strategy; supply chain; marketing and planning; basic law; basic accounting; basic finance; basic economics.

Course Code : 070153608
Course Title : Data Analytics
Credit   : 3(2-2-5)
Prerequisite : None
<u>Descriptions</u> Process of data collection; basic data mining concept; data mining techniques; data cleansing; data clustering; discovering patterns of data; data prediction.

Course Code : 070153609
Course Title : Mathematics for Digital Economy I
Credit   : 3(2-2-5)
Prerequisite : None
<u>Descriptions</u> Limit and continuity of function; differentiation and integration; sequence and series; discrete mathematics and applications.

Course Code : 070153610
Course Title : Mathematics for Digital Economy II
Credit   : 3(2-2-5)
Prerequisite : 070153609 Mathematics for Digital Economy I
<u>Descriptions</u> Matrix and vector analysis; graph theory and applications; numerical derivatives; linear equation; introduction to probability and statistics.

Course Code : 070153701

Course Title : DevOps I

Credit : 3(2-3-5)

Prerequisite : None

<u>Descriptions</u> Tools for DevOps and distributed version control system; open source technology using version control service; Git; GitHub.

Course Code : 070153702

Course Title : DevOps II

Credit : 3(2-3-5)

Prerequisite : 070153701 DevOps I

<u>Descriptions</u> Building and deployment of an application using open source technology; workshop with enterprise team.

Course Code : 070153703

Course Title : Digital Media Design and Development

Credit : 3(2-3-5)

Prerequisite : None

<u>Descriptions</u> Techniques for preparation, production, and combination of digital media content; scripting for creative digital media applications; pre-production, production and post-production methods in the creation of media rich interactive applications; user interface design and prototyping; pitching ideas and products; quality assurance; testing and quality evaluation; legal and ethical issues in the production of digital media artefacts; product delivery and launch.

Course Code : 070153704

Course Title : Internet of Things and Edge Computing for Smart Business

Credit : 3(2-3-5)

Prerequisite : 070153701 DevOps I

<u>Descriptions</u> Sensors; Internet of Things devices; how to set up Internet of Things platform; Network Platform for Internet of Everything; micro- controller board programming; C programming; Python programming; connecting devices through Internet of Things protocols; visualizing data on Internet of Things platform; case study of smart city.

Course Code : 070153705

Course Title : Modern Information Technology Infrastructure

Credit : 3(2-3-5)

Prerequisite : None

<u>Descriptions</u> Linux operating system for computer cluster management; concept and characteristics of cloud computing; cloud service modes; deployment models and hosting; cloud computing reference architecture; cloud operating systems; virtual machine management; virtual network management; auto-scaling; cloud- based information system architectures; shared responsibilities in cloud; Linux container concept; docker system; docker image management; docker orchestration system.

Course Code : 070153706

Course Title : Mobile Application Design

Credit : 3(2-3-5)

Prerequisite : None

<u>Descriptions</u> Principles of mobile programming; tool selection for mobile programming; user interface design of mobile application; design of graphics and animation for mobile application; interaction techniques for mobile application users; touch handling and gestures; patterns of notifications; development of iOS-based mobile application; development of Android-based mobile application.

Course Code : 070153707

Course Title : Introduction to Enterprise Resource Planning

Credit : 3(3-0-6)

Prerequisite : None

<u>Descriptions</u> Business functions; business processes; development of enterprise resource planning systems; marketing and sales; purchasing order; production and supply chain; accounting; human resources; process modeling; process improvement; enterprise resource planning implementation.

Course Code : 070153708

Course Title : Artificial Intelligence

Credit : 3(3-0-6)

Prerequisite : None

<u>Descriptions</u> Definition of artificial intelligence; knowledge representation methods; semantic networks; frames; rules; logic; problem solving by search; uninformed search; heuristic search; playing games using search; elementary logic; logical reasoning; knowledge-

based systems; rule-based production systems; expert systems; machine learning; planning; Intelligent agents; computer languages for artificial intelligence.

Course Code : 070153709
Course Title : Big Data
Credit   : 3(2-2-5)
Prerequisite : 070153605 Foundation of Big Data
<u>Descriptions</u> Characteristics of big data; big data architecture; defining big data; selecting big data stores; big data management; big data analytics; tools and techniques for big data analytics; big data strategies; case study of smart city.

Course Code : 070153710
Course Title : Data Visualization
Credit   : 3(2-3-5)
Prerequisite : None
<u>Descriptions</u> Tools for data analysis; building a dashboard; tools for data visualization; comparison of data visualization tools.

Course Code : 070153711
Course Title : Entrepreneurship Skills
Credit   : 3(3-0-6)
Prerequisite : None
<u>Descriptions</u> Foundation of leadership and teamwork; team building and performance; team leadership; skills in effective and professional communication; conflict resolution; skills for running and exiting entrepreneurs; critical skills in business recovery; improvement of leadership and teamwork skills.

Course Code : 070153712
Course Title : Digital Project Management
Credit   : 3(3-0-6)
Prerequisite : None
<u>Descriptions</u> Project management approaches; digital project lifecycle; project initiation; project planning; project execution; project controlling; project closing; digital project management tools and techniques; user-centricity management in digital projects; success and failure factors of digital project management.

Course Code : 070153713

Course Title : Informatics for Digital Economy Project I

Credit : 3(2-3-5)

Prerequisite : Approval of the department

<u>Descriptions</u> Informatics for digital economy project; research and define problems to be solved for tasks in the government, business, or industry; students must submit a project proposal and report the progress of the project to their project advisor.

Course Code : 070153714

Course Title : Informatics for Digital Economy Project II

Credit : 3(2-3-5)

Prerequisite : 070153713 Informatics for Digital Economy Project I

<u>Descriptions</u> Informatics for digital economy project; design and development of solutions; evaluation of the effectiveness and efficiency of solutions; presentation of solutions; students must submit a project report and have an examination with a committee.

Course Code : 070153715

Course Title : Training

Credit (Hours): 2(240 Hours)

Prerequisite : Approval of the department

<u>Descriptions</u> Students must do an internship for at least 240 hours during a summer semester in an organization related to the field of study in order to learn work processes related to the field; course evaluation is in the form of satisfaction (S) or unsatisfaction (U).

Course Code : 070153716

Course Title : Co-operative Education Preparation

Credit : 2(0-4-2)

Prerequisite : None

<u>Descriptions</u> Principles; concepts and philosophy of cooperative education; processes and regulations related to cooperative education; job recruitment techniques and interviews; basic knowledge in the workplace; intrapersonal self- development based on competency standard; social adaptation; personality development; English language; information technology for personal communication; human relations; teamwork; organizational structure; office administration; labor law; quality management in organization; professional and ethical skills enhancement; project implementation guidelines; daily report; project report writing; project presentation.

Course Code : 070153717

Course Title : Co-operative Education

Credit (Hours): 6(540 Hours)

Prerequisite : 070153716 Co-operative Education Preparation

<u>Descriptions</u>   In the first semester of the fourth year, students are required to work as an intern for at least 18 weeks or 540 hours at an organization related to informatics for digital economy, with an approval of the department.

Course Code : 070153801

Course Title : Business Intelligence

Credit : 3(3-0-6)

Prerequisite : None

<u>Descriptions</u>   Basic principles of business intelligence; components of business intelligence; business intelligence infrastructure; data warehousing; data mining; business performance management; balanced scorecard; dashboard; tools for implementing business intelligence in an organization; business intelligence applications in information systems; current business intelligence applications.

Course Code : 070153802

Course Title : Blockchain for Autonomous Business

Credit : 3(2-2-5)

Prerequisite : None

<u>Descriptions</u>   Motivation of blockchain; distributed ledger; blockchain architecture; contemporary blockchain platforms; blockchain consensus algorithms; smart contract; decentralized application; decentralized autonomous organization.

Course Code : 070153803

Course Title : Agile Software Engineering

Credit : 3(3-0-6)

Prerequisite : None

<u>Descriptions</u>   Principles and processes of agile software development; agile tools and techniques for initiating, planning, and executing software development projects; value-driven delivery; self-managed team; communication and reporting methods, change embracement; agile project management.

Course Code : 070153804
Course Title : Modern Data Processing Platform
Credit   : 3(2-3-5)
Prerequisite : None
<u>Descriptions</u> Distributed infrastructure concept; MapReduce concept; Hadoop ecosystem; Hadoop ecosystem installation; Hadoop Distributed File System; Hadoop YARN resource management platform; Hadoop MapReduce; Spark data processing framework; Hive data warehouse; Hive data query and analysis.

Course Code : 070153805
Course Title : Virtual Environment Design and Development
Credit   : 3(2-3-5)
Prerequisite : None
<u>Descriptions</u> Virtual navigation; 3D modeling; motion capture; virtual environment programming; interaction design in virtual environments; virtual environment interface design.

Course Code : 070153806
Course Title : Digital Business for Aging Society
Credit   : 3(3-0-6)
Prerequisite : None
<u>Descriptions</u> Needs analysis of aging society; elderly physical and cognitive abilities; product and service development for the elderly; business model canvas.

Course Code : 070153807
Course Title : Foundation of Management
Credit   : 3(3-0-6)
Prerequisite : None
<u>Descriptions</u> Foundations of management understanding; environment of corporate culture; evolution of management theory; management process and responsibility of executives; organizational planning and goal setting; human resource management; leadership in organizations; motivation in organizations; communicating in organizations; teamwork in organizations; ethics and business responsibility.

Course Code   : 070153808
Course Title : Digital Innovation
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions Innovative thinking; design innovation process; digital innovation idea tools; innovation life cycle; business model for innovation; strategic innovators; human centered and design- driven innovation; knowledge and change management; case study of digital innovation.

Course Code : 070153809
Course Title : Digital Business Strategy and Marketing
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions: Traditional marketing concepts; digital marketing concepts; consumer demand and behavior; digital marketing plan; digital marketing analysis; digital marketing strategy; value creation through digital marketing; application of digital marketing tools; development of digital innovation for market needs.

Course Code : 070153810
Course Title : Laws in Digital Economy
Credit   : 3(3-0-6)
Prerequisite : None
Descriptions Legal and regulatory issues related to information technology and the copyright of software; electronic transaction law and computer-related crime act; cybercrime and fraud; intellectual property law; digital governance; digital standard; compliance of law, policy and digital management standard.

Course Code : 070153811
Course Title : Seminar in Digital Economy
Credit   : 3(1-4-4)
Prerequisite : None
Descriptions Independent study from a literature review of research and academic papers in digital economy; reading, analyzing, synthesizing, and writing report related to topics of interest with guidance from class advisors; presentation of research report in class.

Course Code : 070153812
Course Title : Seminar in Business Informatics
Credit : 3(1-4-4)
Prerequisite : None
Descriptions   Independent study from a literature review of research and academic papers in business informatics; reading, analyzing, synthesizing, and writing report related to topics of interest with guidance from class advisors; presentation of research report in class.

Course Code : 080203906
Course Title : Economics for Individual Development
Credit : 3(3-0-6)
Prerequisite : None
Descriptions   Economic framework and its applications to solve economic and social problems as well as encouraging potential of careers based on sufficiency economic theory.

Course Code : 080203909
Course Title : ASEAN Economic, Political and Cultural Studies
Credit : 3(3-0-6)
Prerequisite : None
Descriptions   Broad-based multidisciplinary introduction course about the ASEAN countries in dimensions of economic, political, social and multi-cultural characteristics of ASEAN countries.

Course Code : 080303104
Course Title : Psychology for Work
Credit : 3(3-0-6)
Prerequisite : None
Descriptions   Psychology for work; motivation; decision-making; problem-solving; conflicts at work; creative thinking; coordination; leadership; team building; communication at workplace.

Course Code : 080303201
Course Title : Effective Speech
Credit : 3(3-0-6)
Prerequisite : None
Descriptions   Significance of speech; aspects of speaking; types of speech; audience analysis; speech writing and preparation for the presentation; application of psychological approaches to speech presentation; effective speech for different occasions; evaluation of speech; self-evaluation and others.

Course Code : 080303503

Course Title : Badminton

Credit : 1(0-2-1)

Prerequisite : None

<u>Descriptions</u> History of badminton; techniques, rules, regulations; usage of proper equipment; practice in basic skills and applying the skills to play games; good sportsmanship and spectator.

Course Code : 080303606

Course Title : Systematic and Creative Thinking

Credit : 3(3-0-6)

Prerequisite : None

<u>Descriptions</u> System; neurological system; psychological process to understand human's thought: systematic thinking, analytical thinking, strategic thinking, synthesis thinking, creative thinking, integrative thinking; techniques for developing thinking.

Evaluation and Grading

Grade	Score	Result
A	4.0	Excellent
B+	3.5	Very Good
B	3.0	Good
C+	2.5	Above Average
C	2.0	Average
D+	1.5	Below Average
D	1.0	Poor
F	0	Fail
Fa	0	Fail, Insufficient Attendance
Fe	-	Fail, Absent from Examination
S	-	Satisfactory
U	-	Unsatisfactory
I	-	Incomplete
Ip	-	In-progress
W	-	Withdrawal