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# **Electronics and Communications Engineering, Degree Programme in Digitalisation, Computing and Electronics, (BSc, Tech) 2021-2022 - IBPECEDICE2021**

**Code**

IBPECEDICE2021

**Validity**

1.8.2021 -

**Educational level**

Bachelor's Programmes

**ECTS credits**

180

**Duration (years)**

3

**Language**

English

**Specifications**

**Degree**

Bachelor of Science (Technology)

**Degree title**

**Programme**

-

**Major subject**

-

**Classification code**

-

**Type**

-

**Group**

-

**Tags**

**Person in charge**

Riku Hietaniemi

**Organization unit**

Faculty of Information Technology and Electrical Engineering

**Description****Description**

The Degree Programme in Digitalisation, Computing and Electronics (DICE) focuses on providing a wide range of skills and knowledge needed in research, product development, and production of computer-based devices, services and systems including, for example, expertise for developing solutions to artificial intelligence based data analysis, Internet of Things, and interactive systems. The programme is based on the latest research excellence and prepares students to apply their skills in working life and gives them tools for continuous learning as well.

**Further information****Curriculum development and working life cooperation****Objectives**

After performing the BSc studies in the degree programme, a student

- knows the essential concepts, methods, and technologies in Information and Communication Technologies (ICT)
- can use and apply the acquired knowledge in a creative and critical manner in their work
- can use information technology tools and communication skills in solving problems in their field of study
- is able to work responsibly both independently and as a team member, and can communicate clearly to international audience both literally and verbally
- has the abilities required for master's studies and continuous professional development.

After completing the MSc in Electronics and Communications Engineering studies a student

- obtain the latest information and special know-how and utilize it for the benefit of product development, research and specialist work in their specialization area
- produce new information in their specialization area for the benefit of the industry and society
- carry out research using scientific research methods
- set goals for themselves and work independently and in teams to achieve the set goals
- communicate clearly and rationally both literally and orally
- expand and deepen their skills independently in the spirit of lifelong learning
- In addition the student masters the learning outcomes of the chosen study specialization.

**Structure****Code****Name****Credits**

<b>IBPECEDICE2021</b>	<b>Electronics and Communications Engineering, Degree Programme in Digitalisation, Computing and Electronics, (BSc, Tech) 2021-2022</b>	<b>180</b>
IBPECEDICE2021-1001 Multidisciplinary Studies (choose all)		75
<b>IBPECEDICE2021-1002 Language, Communications and Orientation Studies</b>		<b>8</b>
521099P	Orientation for DICE students	3
902167Y	Professional Communication for Technology (ECE)	5
<b>IBPECEDICE2021-1003 Second Official Language or Foreign Language</b>		<b>2</b>
<b>IBPECEDICE2021-1004 Second official language</b>		<b>2</b>
901048Y	Second Official Language (Swedish), Written Skills	1
901049Y	Second Official Language (Swedish), Oral Skills	1
900081Y	Second Official Language (Finnish), Written Skills	1
900082Y	Second Official Language (Finnish), Oral Skills	1
901060Y	Second Official Language (Swedish), Written Skills	1
901061Y	Second Official Language (Swedish), Oral Skills	1
<b>IBPECEDICE2021-1005 Foreign Language</b>		<b>2</b>
900017Y	Survival Finnish	2
<b>IBPECEDICE2021-1006 Compulsory Basic and Intermediate Studies</b>		<b>65</b>
521141P	Elementary Programming	5
031010P	Calculus I	5
811102P	Devices and Data Networks	5
811103P	Introduction to Software Engineering	5
031078P	Matrix Algebra	5
521077P	Introduction to Electronics	5
811322A	Programming 2	5
031075P	Calculus II	5
031021P	Probability and Mathematical Statistics	5
521150A	Introduction to Internet	5
521100A	Practical training for DICE students	5
521160P	Introduction to Artificial Intelligence	5
811397A	Basics of Project Work	5
IBPECEDICE2021-1009 Electronics and Communications specialisation		95
031076P	<i>Differential Equations</i>	5
521109A	<i>Electrical Measurement Principles</i>	5
521302A	<i>Circuit Theory 1</i>	5
031077P	<i>Complex analysis</i>	5
521303A	<i>Circuit Theory 2</i>	5
031080A	<i>Signal Analysis</i>	5
521071A	<i>Principles of Semiconductor Devices</i>	5
521431A	<i>Principles of Electronics Design</i>	5

521337A	<i>Digital Filters</i>	5
521298A	<i>Digital Techniques 1</i>	5
521432A	<i>Electronics Design I</i>	5
521169A	<i>Electromagnetics Engineering</i>	5
521307A	<i>Laboratory Exercises on Analogue Electronics</i>	5
521404A	<i>Digital Techniques 2</i>	5
521384A	<i>Basics in Radio Engineering</i>	5
521241A	<i>Optical systems</i>	5
521070A	<i>Introduction to Microfabrication Techniques</i>	5
521040A	<i>3D Virtual Environments and Applications</i>	5
521330A	<i>Telecommunication Engineering</i>	5
IBPECEDICE2021-1010 Bachelor's Thesis and Communication		10
521101A	<i>Bachelor's Thesis / DICE</i>	10
521010A	<i>Maturity Test for Bachelor's Degree, Electronics and Communications Engineering</i>	0