



EESTI LENNUAKADEEMIA

## Õppematerjalide ajakohasuse protokoll 2023/2024 õppeaasta

Õppematerjal on vastavuses Eesti Lennuakadeemia õppeprogrammile (MTOE 4.2.0, 4.2.1, 4.2.2, 4.2.3), Euroopa Komisjoni regulatsiooni Osa-66 liitega I.

**Mooduli nr:** Moodul 4

**Õppematerjali nimetus:** AIRCRAFT TECHNICAL BOOK (ATB) MODULE 4 - ELECTRONIC FUNDAMENTALS FOR B2 CERTIFICATION

**Lisainfo:** Aircraft Technical Book (ATB) paber kandjal ja e-raamatuna (B2 kategooria)

**Õppematerjali pealkiri:** AIRCRAFT TECHNICAL BOOK (ATB) MODULE 4 - ELECTRONIC FUNDAMENTALS FOR B2 CERTIFICATION

**Revisjoni number:** 1

**Kasutusperiood:** september 2023 – september 2024

Heaks kiidetud veebikeskkond distantõppe läbiviimiseks

Zoom (<https://zoom.us/>)

Google Classroom ([classroom.google.com](https://classroom.google.com))

Protokolli koostamise kuupäev: 02.08.2023

MTO koolitusjuht: Madis Parv  
(allkirjastatud digitaalselt)

## ÕPPEMATERJALI VASTAVUSHINDAMISE KONTROLL-LEHT

Mooduli nr. ja nimetus: <b>Module 4 Electronic Fundamentals</b>	Tase			Õppematerjali vastavus Osa-66 Lisa III mooduli programmile
	A	B1	B2	
<b>4.1 Semiconductors</b>  <b>4.1.1 Diodes</b>  <i>(a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes.</i>  <i>(b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.</i>	-	2	2	<input checked="" type="checkbox"/> Kontrollitud, vastab <input type="checkbox"/> Kontrollitud, ei vasta
	-	-	2	
<b>4.1.2 Transistors</b>  <i>(a) Transistor symbols; Component description and orientation; Transistor characteristics and properties.</i>  <i>(b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.</i>	-	1	2	<input checked="" type="checkbox"/> Kontrollitud, vastab <input type="checkbox"/> Kontrollitud, ei vasta
	-	-	2	
<b>4.1.3 Integrated Circuits</b>  <i>(a) Description and operation of logic circuits and linear circuits/operational amplifiers;</i>  <i>(b) Description and operation of logic circuits and linear circuits;</i>	-	1	-	<input checked="" type="checkbox"/> Kontrollitud, vastab <input type="checkbox"/> Kontrollitud, ei vasta
	-	-	2	

<i>Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.</i>				
<b>4.2 Printed Circuit Boards</b>  <i>Description and use of printed circuit boards.</i>	-	1	2	<input checked="" type="checkbox"/> Kontrollitud, vastab <input type="checkbox"/> Kontrollitud, ei vasta
<b>4.3 Servomechanisms</b>  <i>(a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters;</i>  <i>(b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.</i>	-	1	-	<input checked="" type="checkbox"/> Kontrollitud, vastab <input type="checkbox"/> Kontrollitud, ei vasta
	-	-	2	

**OTSUS:**

Õppematerjal **vastab** kehtiva määruse Osa-66 Lisa III I liite mooduli programmile.

Õppematerjali vastavuse kontrollis ja kinnitas:

MTO koolitusjuht: **Madis Parv**  
/allkirjastatud digitaalselt/

Kuupäev: 02.08.2023