

COURSE SYLLABUS

| I. GENERAL DATA ON SUBJECT COURSE | |
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| CODE AND NAME OF SUBJECT | TECH.047 Basic Avionics |
| ACADEMIC YEAR, TERM, FORM OF STUDIES | 2020/2021 fall semester, daytime studies |
| CURRICULUM, SPECIALITY AND MODULE WHERE THE SUBJECT BELONGS TO | Optional course for exchange students and other students |
| SCOPE OF SUBJECT | 3,0 ECTS |
| FORM OF CONTROL | Non-differentiative (passed/not passed) |
| WORKLOAD AND FORMAT OF STUDIES | |
| LANGUAGE OF INSTRUCTION | English |
| ADDITIONAL INFORMATION (prerequisite subject courses, restrictions on participating in the course, etc) | No prerequisite courses necessary |
| LECTURER | Neethu Xavier Akkara |

| II. THE GOAL, LEARNING OUTCOMES AND DESCRIPTION OF SUBJECT COURSE | |
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| LEARNING OUTCOMES | <p>The student having covered the subject course:</p> <ul style="list-style-type: none"> • Principles of operation and construction of measuring instruments based on pressure change measurement. • Operating principles and construction of measuring instruments based on the measurement of electrical signal parameters. • Principles of operation and construction of radio navigation instruments and related ground equipment. • Basics of automatic flight. |

| III. GRADING SYSTEM AND CRITERIA | |
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| PREREQUISITES TO BE ALLOWED TO TAKE EXAMINATION/PRELIMINARY EXAMINATION | No prerequisites |
| FORMATION OF EXAMINATION MARK/OF PRELIMINARY EXAM | Test |
| OPPORTUNITIES FOR SETTling ARREARS | - |
| GRADING SYSTEM | RESPECTIVE MARKING CRITERIA The test is performed, at least 75% must be scored. |

| IV. TIMETABLE AND LIST OF TOPICS | |
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| TOPICS AND MATERIALS | |
| Week 01(2h) Barometric altimeters; Vertical speed indicators; Airspeed indicators; Machmeters. | |
| Week 01 (2h) Introduction; Measuring Systems (ATA 31); Classification, terminology and Atmosphere; Pressure measuring equipment and systems; Pitot tube pressure gauges. | |
| Week 2 (2h) Rotation and slip indicators; Gyro-horizons Compasses; Meter compressed air systems. | |
| Week 02 (2h) Principles of operation of gyroscopic displays; Aerial horizons. | |

Week 03 (2h) Altitude indicators / alarm systems; Ground proximity warning systems; Flight data computers.

Week 03 (2h) Direct reading manometers and thermometers; Temperature display systems; Fuel flow indicator systems.

Week 04 (2h) Flight data recording systems; Electronic flight control instrument systems; Meter warning systems, including basic warning systems and central warning panels.

Week 04 (2h) Collapse alarm systems and meeting angle indicators; Vibration measurement and indicators; Picture booth.

Week 05 (2h) Ultra High Frequency (VHF); High Frequency Communication (HF); Emergency beacons Cockpit voice recorders; Communication and Notification System (ARINC).

Week 05 (2h) Communication Systems (ATA 23); Principles of radio propagation, antennas, transmission lines, communication, radio receiver and transmitter.

Week 06 (2h) Navigation Systems (ATA 34); Ultra High Frequency Orbital Radio (VOR); Automatic Aiming Devices (ADF); Instrument Landing System (ILS).

Week 06 (2h) Microwave Landing System (MLS); Pilot indicator systems; Distance measuring devices (DME); Ultra-low frequency and hyperbolic radio navigation (VLF /Omega)

Week 07 (2h) Inertial Navigation System (INS); Air Traffic Monitoring Radar Transponder; Secondary Monitoring Radar (SSR).

Week 07 (2h) Doppler navigation; Regional navigation, regional navigation systems (RNAV); Air Traffic Control Systems (FMS); Global Positioning System (GPS), Global Navigation Satellite System (GNSS).

Week 08 (2h) Flight with Automatic Control (ATA 22); Fundamentals of automatic flight control, including its principles and definitions; Command signal processing.

Week 08 (2h) Traffic Hazard Warning and Collision Avoidance System (TCAS); Weather observation radar; Radio altimeter.

Week 09 (2h) Automatic trimming; Autopilot connection to navigation equipment; Automatic engine traction control systems.

Week 09 (2h) Control modes: rotation about longitudinal, transverse and vertical axes and corresponding control channels; Silencers; Helicopter stability systems.

Week 10. (2h) Automatic landing systems: principles and classification, modes of operation, approach, glide path, landing, go-around, tracking systems and emergency situations

Week 10 (2h): Repetition, consultation

V. LEARNING MATERIALS

Lecture materials (Slides)