Physics Department

Edwar Iswardy, S.Si,M.Si.,Ph.D

Position	Electronics, Biomedical Instrumentation (Vocational Degree of Electronic Engineering Study Programme); Measurement and Calibration, Electronics, Biosensor, Bioelectronics, Physics of Medical Imaging (Bachelor Degree of Physics Study Programme); Introduction to Biomedical Engineering (Master Degree of Physics Study Programme)
Academic Career	**Doctorate course**: National Cheng Kung University (NCKU), Taiwan - Biomedical Engineering (2007-2010); **Magister Course**: Universitas Indonesia (UI),Indonesia -Physics Department (2006-2008); **Bachelor Course**: Universitas syiah Kuala (USK), Indonesia - Physics Department (1996-2021)
Employment	Assistant Professor (2017-present), Coordinator of Student Affairs Physics Dept. (2023-2024), Secretary of Physics Dept., USK (2019- 2023), Teaching staff of Physics Dept., USK (2005 – 2017), Research Fellow Biosensor Lab BME-NCKU, 2018, Research Assistant BME-NCKU, 2013-2017.
Research and development projects (last 5 years)	1. Development of IoT-Based STEM Learning Modules by Using the IMAGy Device/ Kedaireka Matching Fund DIKSI/IDR302,000,000/2024 2. Strengthening Downstream and Promotion of the IMAGy Device Through Digital Transformation Workshops on STEM Learning, Kedaireka Matching Fund DIKSI/IDR178,000,000/2024 3. Downstreaming and Commercialization of the IMAGy-Based STEM Learning as an Experimental Tools, Kedaireka Matching Fund Dikti, IDR380,000,000/May-December 2023, 4. Design and Fabrication of Indium Tin Oxide-Based Electrodes and Their Application for Red Blood Cell Isolation by Dielectrophoresis Method, PTNBH-USK/ IDR17,000,000/May-December 2023 5. Synthesis and Characterization of Methacrylate-Based Polymer Microspheres for Biosensor Matrix Applications, PTNBH-USK/IDR24,500,000/May-December 2023 6. Analysis of Morphological Characteristics and Mechanical Properties of Bone Implant Plates Using the Digital Image Correlation Method, PNBP USK/IDR50,000,000/2022 7. Utilizing Smartphone Sensors as STEM-Based Appropriate Technology to Support Independent Learning and Build Scientific Character in the 21st Century/LPDP/ IDR80,000,000/2022 8. Study of 3D Geometry Measurement of Bone Structure Model Using Reverse Engineering Method, DRPTM/IDR280,000,000/2020
Collaborations (last 5 years)	1. International Islamic University Malaysia, 2024-present 2. PT Halia Teknologi Nusantara, 2023-2024 3. Zainoel Abidin Hospital, Banda Aceh, 2021-present 4. Science, Technology, Engineering, and Mathematics (STEM) Research Center USK 5. Institute of Biomedical Engineering, NCKU, Taiwan, 2018-2021
Patents and proprietary rights	Copyright Patent no. IDS000009602: Alat Ukur NPK, Kelembapan, dan Keasaman Tanah 2025, Copyright IP no. EC002023117585: Modul_Momen Puntir Menggunakan IMAGy Berbasis Pendekatan STEM 2023
Selective Publications (last 5 years)	1. Khazanna, S Fitriyani, R Safitri, K Lahna, E Yusibani, Irwansyah, E Iswardy (2024) Dielectrophoretic force characteristics toward Lactobacillus casei on an oblique-patterned electrode, Journal of Physics: Conference Series 2734 (1), 012004 2. I Irwansyah, M Dirhamsyah, E Iswardy, T Nanta Aulia, M Alkindi, S N Diah (2024) Experimental Study of Strain Measurement using 2D Digital Image Correlation on Fixation Plate and Calcaneus Bone Fracture, Journal of Physics: Conference Series 2739 (1), 012049 3. N Nurjannah, S Zainura, E Iswardy, E Yusibani (2024) Volume Estimation of Lung Cancer using Image-J For CT-Scan Image, INDONESIAN JOURNAL OF APPLIED PHYSICS 14 (1), 13-22 4. Z Husen, Z Albarra, K Suhud, F Fauzi, E Yusibani, I Irhamni, F Syamsuddin, E Iswardy, N Nurhanif, AF Omar, MS Surbakti (2023) Realtime instrumentation system towards blood oxygen saturation level monitoring with Liquid Crystal Display (LCD) and smartphone, Journal of Aceh Physics Society 12 (2), 8-11 5. Irwansyah, M Dirhamsyah, E Iswardy, TN Aulia, M Alkindi, SND Fitriani (2022) Deformation and Strain Analysis in Calcaneus Plate Using Digital Image Correlation Method, International Conference on Experimental and Computational Mechanics 6. E Iswardy, M Munzir, E Yufita (2022) Improvements to conventional methods for determining lung cancer areas from CT scan images using ImageJ-software, Journal of Physics: Theories and Applications 6 (2), 97-105
Membership	Physical Society of Indonesia (PSI) (2018-present); APDOVI/member (2022-present), Phi Tau Phi Taiwan Chapter 2017-present
External Link	https://fsd.usk.ac.id/edwariswardy/