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|  |  |  |  |  |  | Załącznik nr 2 do Zarządzenia Nr 915 z 2019 r. Rektora PB |
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|  |  |  |  | **COURSE DESCRIPTION CARD** |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Faculty of Electric Engineering** |
| **Field of study** | **Electrical and Electronics Engineering** | **Degree level and programme type** | **Master's degree** |
| **Specialization/ diploma path** |  **-** | **Study profile** | **-** |
| **Course name** | **Wireless Broadcasting Systems** | **Course code** | **IS-FEE-20005W** |
| **Course type** | **elective** |
| **Forms and number of hours of tuition**  | **L** | **C** | **LC** | **P** | **SW** | **FW** | **S** | **Semester** | **winter** |
| **15** |  | **15** |  |  |  |  | **No. of ECTS credits** | **3** |
| **Entry requirements** | **-**  |
| **Course objectives** | The principal objective of lectures is to cover the fundamentals digital television and radio systems and radiotransmitter structures. |
| **Course content** | International organizations for radiocommunication: ITU, Radiocommunication Rule, elements of radiocommunication law. Structure of radiotransmitter. Digital television - DVB standard. Digital radio - DAB and DRM standards. Digital television in Europe. European standards for radio and television devices. Measurement of selected blocks of transmitter-receiver devices. Antennas and antenna arrays of transmitter systems and its parameters. |
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| **Teaching methods** | lecture, laboratory class |
| **Assessment method** | **lecture - oral examlaboratory class - evaluation of reports, verification of preparation for classes** |
| **Symbol of learning outcome**  | **Learning outcomes** | **Reference to the learning outcomes for the field of study** |
| **LO1** | has knowledge about principles of basis radiotransmitters devices; |  |
| **LO2** | has knowledge about principles of DVB and DAB standards family; |  |
| **LO3** | obtain a skill of measurements electronic blocks with vector network analyzer; |  |
| **LO4** | obtain a skill of measurements of signals in radioelectronic blocks. |  |
| **LO5** |   |  |
| **Symbol of learning outcome** | **Methods of assessing the learning outcomes** | **Type of tuition during which the outcome is assessed** |
| **LO1** | evaluating the homeworks and oral exam | **L** |
| **LO2** | evaluating the homeworks and oral exam | **L** |
| **LO3** | evaluating the student's reports | **LC** |
| **LO4** | evaluating the student's reports | **LC** |
| **LO5** |   |  |
| **Student workload (in hours)** | **No. of hours** |
| **Calculation** | **lecture and laboratory sessions attendance** | **30** |
| **preparation for and participation in exams/tests**  | **10** |
| **preparation for laboratory classes** | **15** |
| **elaboration of lab reports** | **20** |
|  |  |
| **TOTAL:** | **75** |
| **Quantitative indicators** | **HOURS** | **No. of ECTS credits** |
| **Student workload – activities that require direct teacher participation** | **32** | **1,5** |
| **Student workload – practical activities** | **58** | **2** |
| **Basic references** | **1. Hoeg W., Lauterbach T.: Digital Audio Broadcasting. Principles and Applications of Digital Radio. Wiley 2003.2. Alencar M.: Digital Television Systems. Cambridge UP 2009.3. ETSI EN 300 744 V1.6.1 Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television.4. ETSI TS 102 366 V1.2.1 Digital Audio Compression (AC-3, Enhanced AC-3).** |
| **Supplementary references** | **1. Kalivas G.: Digital Radio System Design. Wiley and Sons 2009.** |
| **Organisational unit conducting the course** | **Department of Photonics, Electronics and Lighting Technology** | **Date of issuing the programme** |
| **Author of the programme** | **Ph.D., Maciej Sadowski** | **13.02.2020** |
| **L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar** |   |