

ARTIFICIAL INTELLIGENCE IN MEDICINE

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| 1 | Course Title: | ARTIFICIAL INTELLIGENCE IN MEDICINE |
| 2 | Course Code: | TIP3191 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | First Cycle |
| 5 | Year of Study: | 3 |
| 6 | Semester: | 5 |
| 7 | ECTS Credits Allocated: | 3.00 |
| 8 | Theoretical (hour/week): | 1.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 0 |
| 11 | Prerequisites: | None |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Öğr. Gör. Dr. Mevlüt Okan AYDIN |
| 15 | Course Lecturers: | Prof.Dr.Züleyha Alper Doç.Dr.İlker Mustafa Kafa |
| 16 | Contact information of the Course Coordinator: | Öğr. Gör. Dr. Okan Aydın okanaydin@uludag.edu.tr Uludağ Üniversitesi Tıp Fakültesi, USIM, 16059 Nilüfer, Bursa |
| 17 | Website: | http://bilgipaketi.uludag.edu.tr/Programlar/Detay/28?AyID=30 |
| 18 | Objective of the Course: | Students will be able to; accelerate the processes such as diagnosis and treatment in the clinic and to increase the service assurance of all human malpractice. |
| 19 | Contribution of the Course to Professional Development: | History of artificial intelligence, how to use artificial intelligence, artificial intelligence and malpractice, preparing scenarios with artificial intelligence and reinterpreting data using it, |
| 20 | Learning Outcomes: | |
| | 1 | Has knowledge of the basic techniques and methods of artificial intelligence. |
| | 2 | Have knowledge of what machine learning systems are and how they work. |
| | 3 | Interpret the patient's complaints and symptoms |
| | 4 | Can combine and interpret the tests performed with the patient's data. |
| | 5 | They can reinterpret the patient's data with artificial intelligence and confirm its accuracy. |
| | 6 | They can use artificial intelligence for these purposes and verify its accuracy. |
| | 7 | Discuss the ethics of the use of AI in the medical field. |
| | 8 | Students can solve a scenario constructed with AI and confirm its accuracy. |
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| 21 | Course Content: | |
| | Course Content: | |

| Week | Theoretical | Practice | | |
|----------------------------|--|---|-----------------|------------------------|
| 1 | Introduction to artificial intelligence | | | |
| 2 | Machine learning systems | | | |
| 3 | Decide with clinical information (practice) | | | |
| 4 | Clinical decision support systems (practice) | | | |
| 5 | AI-based clinical decision making (practice) | | | |
| 6 | Artificial intelligence in medical diagnosis, treatment selection and monitoring | | | |
| 7 | Artificial intelligence and ethics | | | |
| 8 | Use of artificial intelligence in health (practice) | | | |
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| 22 | Textbooks, References and/or Other Materials: | 1.Marc Peter Deisenroth, A. Aldo Faisal, Cheng Soon Ong - Mathematics For Machine Learning (2019, Cambridge University Press) https://mml-book.github.io/ 2.Linear Algebra and Its Applications, 5th Edition, David C. Lay, Stephen R. Lay, Judi J. McDonald | | |
| Activites | | Number | Duration (hour) | Total Work Load (hour) |
| Theoretical | 4. | 14 | 1.00 | 14.00 |
| Practicals/Labs | | 0 | 0.00 | 0.00 |
| Self study and preperation | | 5 | 0.00 | 0.00 |
| Homeworks | | 0 | 0.00 | 0.00 |
| Projects | | 0 | 0.00 | 0.00 |
| Field Studies | | 0 | 0.00 | 0.00 |
| Midterm exams | | 7 | 1.00 | 1.00 |
| Others | | 14 | 5.00 | 70.00 |
| Final Exams | | 1 | 1.00 | 1.00 |
| Total Work Load | | | | 86.00 |
| Total work load/ 30 hr | | 10 | | 221-y |
| ECTS Credit of the Course | | | | 3.00 |
| | | 12.ÖZKAN, Y. ve EROL, Ç., 2018, "Kanser Biyoenformatiğinde Yapay Zeka", ISBN: 978-605-9594-54-7, Papatya Yayıncılık Eğitim A.Ş., İstanbul. | | |
| 23 | Assesment | | | |
| TERM LEARNING ACTIVITIES | | NUMBE R | WEIGHT | |
| Midterm Exam | | 1 | 40.00 | |
| Quiz | | 0 | 0.00 | |
| Home work-project | | 0 | 0.00 | |
| Final Exam | | 1 | 60.00 | |
| Total | | 2 | 100.00 | |

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| Contribution of Term (Year) Learning Activities to Success Grade | 40.00 |
| Contribution of Final Exam to Success Grade | 60.00 |
| Total | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | Measurement and evaluation are carried out according to the principles of Bursa Uludağ University Associate Degree and Undergraduate Education and Training Regulation. |

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| 24 | ECTS / WORK LOAD TABLE |
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| 25 | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | |
|---|---|-----|-----|-------|-----|-----|----------|-----|-----|--------|------|------|-------------|------|------|------|
| | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ10 | PQ11 | PQ12 | PQ13 | PQ14 | PQ15 | PQ16 |
| ÖK1 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| ÖK2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| ÖK3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| ÖK4 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 4 | 3 | 5 | 4 | 3 | 3 |
| ÖK5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| ÖK6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| ÖK7 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| ÖK8 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| LO: Learning Objectives PQ: Program Qualifications | | | | | | | | | | | | | | | | |
| Contribution Level: | 1 very low | | | 2 low | | | 3 Medium | | | 4 High | | | 5 Very High | | | |