UNIVERSITATEA OVIDIUS DIN CONSTANŢA
FACULTATEA DE MATEMATICĂ ŞI INFORMATICĂ

ADMITEREA 2025 LA PROGRAMUL DE MASTER:

SECURITATE CIBERNETICĂ ŞI ÎNVĂŢARE AUTOMATĂ ÎN LIMBA ENGLEZĂ

- CYBER SECURITY AND MACHINE LEARNING-

TEME PROPUSE PENTRU ESEU[1]

1. Information security management according to ISO/IEC 27002:2005
2. Microsoft Security Development Lifecycle (SDL)
3. Object oriented paradigm. Concepts, principles and applications
4. Software process models. Agile software development
5. Conceptual modelling. UML class diagram
6. Mathematical Induction and Recursive Data Types
7. Theorems on prime numbers
8. Access Control Lists
9. Digital Certificates
10. Distribution of Public Keys
11. Eigenfaces algorithm.
12. Tensor-like algorithms for face recognition: representation, data manipulation, folding and unfolding tensors, algorithms A1 and A2.
13. Search engines: TF, TF-IDF, and Okapi models.
14. Artificial neural networks for modelling the logical operators NOT, AND, OR, XNOR (pre-trained models).
15. Swarm Intelligence - algorithms and applications
16. Evolutionary computation - algorithms and applications
17. Nature inspired metaheuristics for clustering problems
18. Evolutionary algorithms for regression problems
19. A comparison between relational and NoSQL databases
20. Conceptual Modeling for transactional Database Systems
21. Logical Modeling for transactional Database Systems
22. Fundamentals of Relational Database Management Systems

[1] Candidatii isi pot alege si o tema care nu este inclusa in aceasta lista cu conditia sa fie relevanta pentru programul de master Securitate Cibernetică şi Învăţare Automată (Cyber Security and Machine Learning)

BIBLIOGRAFIE ORIENTATIVĂ[2]

1. E. Petac, Retele de calculatoare/Computer Networks, Lecture notes, 2021
2. C. M. Puchianu, Ingineria sistemelor soft/Software engineering, Lecture notes, 2021
3. E. Pelican, Optimization Techniques, Lecture notes, 2021
4. E. Pelican, Scientific Computing Algorithms (Pattern Recognition), Lecture notes, 2020
5. L. D. Şerbănaţi, C. M. Bogdan, *Dezvoltarea orientata spre obiecte a programelor in Java*, volumul I, Editura Politehnica Press, ISBN 978-606-515-109-3, 2/e, 2011, 249 pag.
6. C. M. Bogdan, L. D. Şerbănaţi, *Dezvoltarea orientata spre obiecte a programelor in Java*, volumul II, Editura Politehnica Press, ISBN 978-606-515-109-3, 2/e, 2011, 363 pag
7. E. Lehman, F. Thomson Leighton, A. R. Meyer, *Mathematics for Computer Science*, available at https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-spring-2015/readings/MIT6_042JS15_textbook.pdf
8. R. S. Pressman, *Software Engineering. A Practicioner's approach*, Mc Graw Hill, 7th edition, 2010
9. E. Pelican, L. Lita, *Algorithms for face recognition* (in Romanian), MatrixRom, Bucharest, 2015
10. M. Turk, A. Pentland, *Eigenfaces for recognition*, Journal of Cognitive Neuroscience, 1(1991), 71-86
11. I. Goodfellow, Y. Bengio, A. Courville, *Deep Learning Book*, MIT Press, 2016
12. Mihaela Breaban and Henri Luchian, 2011. PSO aided k-Means clustering introducing connectivity in k-Means. In GECCO (Vol. 11, pp. 193-194).
13. Zhu, Z.F., Hui, X.B., Cao, Y.Q. and Lian, W.X., 2013. The Research on Modified K-Means Algorithm Based on GA&SA. In Applied Mechanics and Materials (Vol. 347, pp. 3242-3246). Trans Tech Publications Ltd.
14. Saxena, Amit, Mukesh Prasad, Akshansh Gupta, Neha Bharill, Om Prakash Patel, Aruna Tiwari, Meng Joo Er, Weiping Ding, and Chin-Teng Lin. "A review of clustering techniques and developments." Neurocomputing 267 (2017): 664-681
15. Cranganu, Constantin, and Elena Bautu. "Using gene expression programming to estimate sonic log distributions based on the natural gamma ray and deep resistivity logs: a case study from the Anadarko Basin, Oklahoma." Journal of Petroleum Science and Engineering 70, no. 3-4 (2010): 243-255.
16. Ramzan, Shabana, Imran Sarwar Bajwa, and Rafaqut Kazmi. "An intelligent approach for handling complexity by migrating from conventional databases to big data." Symmetry 10, no. 12 (2018): 698.
17. Győrödi, C., Győrödi, R., Pecherle, G. and Olah, A., 2015, June. A comparative study: MongoDB vs. MySQL. In 2015 13th International Conference on Engineering of Modern Electric Systems (EMES) (pp. 1-6). IEEE
18. Bonabeau E, Marco DD, Dorigo M, Théraulaz G, Theraulaz G. Swarm intelligence: from natural to artificial systems. Oxford university press; 1999. http://docshare04.docshare.tips/files/20663/206639475.pdf
19. Luke, S. (2013). Essentials of Metaheuristics. Lulu, 2013. https://cs.gmu.edu/~sean/book/metaheuristics/Essentials.pdf

[2] Candidatii pot folosi orice alte resurse bibliografice, cu conditia sa fie mentionate in sectiunea Bibliografie a eseului

20. Băutu, E. and Băutu, A., 2009. *Programare genetică: teorie şi aplicaţii*. Editura Universităţii" Alexandru Ioan Cuza".
21. De Jong, Kenneth, 2007. *Evolutionary computation: a unified approach*. MIT Press.
22. Mancas, Christian. *Conceptual Data Modeling and Database Design: A Fully Algorithmic Approach*, Volume 1: The Shortest Advisable Path. Apple Academic Press, 2019.
23. Avi Silberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts*, McGraw-Hill, January 28, 2010. http://codex.cs.yale.edu/avi/db-book/
24. Hector Garcia-Molina, Jeff Ullman, and Jennifer Widom, *Database Systems – The Complete Book*, http://infolab.stanford.edu/~ullman/dscb.html
25. R. Elmasri and S. Navathe, *Fundamentals of Database Systems*, Pearson, 2016
26. G.C. Simsion, G.C. Witt, *Data Modeling Essentials*, Morgan Kaufmann Publishers, Third Edition 2005
27. S. Sumathi, S. Esakkirajan, *Fundamentals of Relational Database Management Systems*, Springer 2007
28. https://www.iso27001security.com/html/27001.html
29. https://docs.microsoft.com/en-us/previous-versions/windows/desktop/cc307748(v=msdn.10)
30. https://www.agilealliance.org/agile101/12-principles-behind-the-agile-manifesto/
31. https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_data_acl/configuration/xe-3s/sec-data-acl-xe-3s-book/sec-acl-named.html
32. https://docs.oracle.com/middleware/11119/wcc/webcenter-content-admin/securityacls.htm
33. https://docs.microsoft.com/en-us/windows/win32/secauthz/access-control-lists
34. https://sites.google.com/site/ddmwsst/digital-certificates
35. https://dzone.com/articles/ssl-in-java
36. https://personal.cis.strath.ac.uk/george.weir/software/sandpit/sandpit.pdf