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| |  | | --- | | **Course Information** |  |  |  | | --- | --- | | Course title | Advanced Methods in Optimization Algorithms | | Semester | 110-2 | | Designated for | COLLEGE OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE Data Science Degree Program | | Instructor | [FREDERICK KIN HING PHOA](https://nol2.aca.ntu.edu.tw/nol/coursesearch/teacher.php?op=s2&td=201247) | | Curriculum Number | Data5001 | | Curriculum Identity Number | 946 U0010 | | Credits | 3.0 | | **Course Syllabus** | | | **Please respect the intellectual property rights of others and do not copy any of the course information without permission** | | | Course Description | (I) Traditional Optimization Methods: 01. Linear Programming. 02. Single-State Optimization Methods. 03. Gradient Methods. 04. Local Search Approaches. 05. Simulated Annealing. 06. Tabu Search. (II) Nature-Inspired Metaheuristic Optimization Methods: 07. Genetic Algorithms. 08. Evolution Strategy. 09. Differential Evolution. 10. Genetic Programming. 11. Particle Swarm Optimization. 12. Ant Colony Optimization. (III) Advanced Topics: 13. Competitive Coevolution. 14. Cooperative Coevolution. 15. Multi-Objective Optimization. 16. Statistical Optimization (Distribution Estimation). 17. Policy Optimization (Reinforcement Learning). 18. Quantum-Inspired Optimization Methods. |  |  | | --- | |  | |

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