

FABIO FRUGGIERO, PhD., Eng.,



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Fabio Fruggiero is an ASSISTANT PROFESSOR since 2008 in Industrial Systems Engineering at the School of Engineering - University of Basilicata - ITALY -

BIOGRAPHY

FABIO FRUGGIERO graduated in Mechanical Engineering at the University of Salerno with a dissertation about newly formed meta-heuristics for the industrial scheduling optimisation, 2004. His dissertation was for published work in the field of industrial optimization at the ICPRI8 conference.

He conducted his PhD in Mechanical Engineering at the University of Salerno - Italy with a dissertation about Digital Factory Application from Manufacturing to Service Environment, 2008.

Formerly, in 2008, He was post PhD student at the Mechanical Engineering Department of the University of Salerno with main topic of research: Operations Management Strategies for HealthCare optimisation.

Currently, he is Assistant Professor, and responsible of the area and lab, in Industrial Systems Engineering at the School of Engineering - Mechanical Engineering Area - of the University of Basilicata- Italy. He runs courses for both Industrial System Engineering and Operations Management.

He works as referee for different International Journals (e.g., IJSOI, IJAMT, IJPR, CPPB, CAIE, EIS, TPMR, TSMSI, IJEBM, UHSE, Cogent OA, CPHS. IJSPM, Applied Science, RESS, ICLEPRO, SFTR, CIM, AIHC, TPMR, etc ...) and the national minister of research.

He is actively working as reviewer and track chair for conference: MIM, INCOM, ISM, BAA 2021.

Track Chair for Human Factor and Ergonomics in IEOM - Industrial Engineering and Operations Management Society - conferences.

He is associate editor and editorial member of: Cogent Engineering Journal; Industrial and Systems Engineering; International Journal of Engineering and Business Management, Frontiers in Manufacturing Technology

Fabio worked as special Issue Editor in: INDUSTRIAL SUSTAINABILITY: PRODUCTION SYSTEMS DESIGN AND OPTIMIZATION ACROSS SUSTAINABILITY (Sustainability Journal - mdpi); SMART INTERACTION FOR THE 4.0 DOMAINS: MODELLING AND SIMULATING THE CONTENT OF FUTURE (in International Journal of Simulation and Process Modelling).

He was member of committee for PhD assignment at the University Technology of Troyes - France; University of Salerno - PhD In Industrial Engineering; University of Calabria - PhD in Industrial Engineering; Universidad Politecnica de Madrid (ETSII-UPM); University of Basilicata PhD in Mechanical Engineering.

He is principal investigator of the project PROMPT on Predictive Maintenance (euro 420.000), Project SO4SIMS on Smart Sustainability in Collaborative Robotics (euro 68.000)

Fabio has been engaged in the auto sector for both Human Factor analysis and Ergonomic research, scheduling optimization, production management. He has collaboration with firms of the production and service sector applying the results of his work to help multinational companies and SMEs to generate safety and Optimize services and profits.

He is acting as consultant to several major companies and patent initiatives. He is active in initiative for knowledge transfer to industry.

He has been conducting research with Ryerson University - Canada; Cardiff School of Engineering - UK; Manchester University - UK; Cork Institute of Technology - IR; Universidad Politecnica de Madrid- Spain (performing lectures and research initiatives); University Of Technology of Troyes - France.

His research's activity encompassed the area of: Human Factor and Corporate Strategy; Industrial System Design Processes; Additive Manufacturing and Advanced Manufacturing; Simulation and Virtual modelling; Agent Based Modelling; Assembly Line Balancing; HealthCare Management and Clinical Risk Assessment; Scheduling and Optimisation; Safety and Risk analysis.

TEACHING (since 2008)

ING0220 Industrial Systems Engineering (bachelor)

The course covers methods and tools to plan industrial systems. The principal key performance indicators are defined. Performances Measurement in TQM approach are discussed. The facility layout problem (group technology and cellular manufacturing strategies as well) is analysed and resolved according to main approaches as for literature. Anthropometry is studied and applied in the workstation design and balancing. Elements of safety engineering for reduction of human errors in the operations of machines, accident- related behaviour models, safety management aspects are introduced. Material handling systems, Warehouse Facility Planning, Fault diagnosis and Maintenance strategies, Safety and Risk Analysis are analyzed and contextualized inside the course. Case studies and exercises and projects are performed.

ING0068 Operations Management (master)

The course deals with Operations Strategies and competitiveness in industrial systems. Inside the courses are analysed the principal methods for forecasting analysis and error measurement. The role of time, product (and Its presentation in BoM), information and uncertainty is stressed. The Inventory Control techniques are discussed and elaborated. Strategies for JIT and MRP implementation and management are discussed. The role of capacity in system is stressed. Main operations scheduling approaches (Neural Networks, Genetic Algorithms, Tabu Search, Ants System, Bees Algorithms) are discussed and implemented for system optimization. The main aspects of Supply chain Management are introduced. The role of Operation Strategies for the management of innovative products and project is elaborated. Student projects and exercises are performed.

REFEREED ARTICLES TO INTERNATIONAL CONFERENCE:

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- C3. 2006 FRUGGIERO, FABIO, M. DEFALCO, A. LAMBIASE, F. LAMBIASE . **Trends and Perspectives on Virtual Reality Usefulness in**

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- C4. 2007 FRUGGIERO, FABIO, LAMBIASE A, FALLON D. . **The Balancing Problem in an Emergency Room based on Ant Colony Optimization algorithm.** In: *Proc. of FAIM07 - The 17th International Conference on Flexible Automation & Intelligent Manufacturing.* vol. Vol. 2, p. 1088-1097, ISBN: 9781427620927, Philadelphia, USA, June 18-20, 2007
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- C7. 2007 FRUGGIERO, FABIO, LAMBIASE A. . **Evolutionary Computing and Swarm Intelligence algorithms for JSSP: Genetic Algorithm vs. Ant Colony Optimization techniques.** In: *Proceedings of IPMM07.* vol. Vol.Cd, Salerno, Italy, June 24-29, 2007
- C8. 2007 FRUGGIERO, FABIO, LAMBIASE A, FALLON D, VITALE S. . **Computer Simulation in Health Care Service: The Emergency Department of CUH.** In: *Advances in Manufacturing Technology - XXI : Proceedings of the 5th international conference on manufacturing research (ICMR2007).* vol. Vol. I, p. 207-212, Leicester, U.K., 11th - 13th September 2007 (Prized as best research award)
- C9. 2009 FRUGGIERO, FABIO, LAMBIASE A. . **The Digital Factory Concept from Manufacturing to Services Environment.** In: *Proceedings of FAIM09 - 19th International Conference in Flexible Automation and Intelligent Manufacturing.* vol. Vol. I, p. 147-154, ISBN: 9780956230331, Middlesbrough, UK, 6-8 July 2009
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- Manufacturing*. vol. Vol. Cd, p. 1130-1140, ISBN: 9781617827143, California State University East Bay, USA, July 12-14th 2010
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- C15. 2011 FRUGGIERO, FABIO, A. Lambiase, M. Sammarco, M. Treves . **Il Piano industriale dell'azienda PINCART - Un percorso tra realtà e ipotesi (Riqualificazione Processo Produttivo)**. In: *Il Piano Industriale dell'Azeinda PINCART - Un percorso tra realtà ed ipotesi - 5° Premio Best Practices per l'Innovazione*. vol. Vol. Cd, p. 1-44, A cura di Commissione Consulenza del Gruppo Servizi Innovativi e Tecnologici di Confindustria Salerno, 24-25 Giugno 2011
- C16. 2012 FRUGGIERO, FABIO, Iannone R., Martino G., Miranda S., Riemma S. . **A Forecast model for pharmaceutical requirements based on Artificial Neural Networks**. In: *IEEE International Conference on Service Operations and Logistics, and Informatics (SOLI)*, 2012. p. 263-268, ISBN: 9781467324007, Suzhou, China, 8-10 July 2012, doi: 10.1109/SOLI.2012.6273543
- C17. 2014 Michael S. Packianather, Baris Yuce, Ernesto Mastrocinque, FRUGGIERO, FABIO, Duc T. Pham, Alfredo Lambiase . **Novel Genetic Bees Algorithm applied to single machine scheduling problem**. In: *2014 World Automation Congress (WAC)*. p. 906-911, IEEE, ISBN: 9781889335490, Kona, Big Island of Hawaii, August 3-7 2014, doi: 10.1109/WAC.2014.6936194
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- C21. 2017 Fruggiero, F., Fera, M., Lambiase, A., Maresca, P., Caja, J. **The role of human fatigue in the uncertainty of measurement** *Procedia Manufacturing* 13, pp. 1320-1327 - 7th Manufacturing Engineering Society International Conference - JUNE 28th - 30 th 2017 Vigo (Spain).
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- C37. 2023 Fruggiero, Fabio, Panagou, Sotirios, Sileo, Monica, Papoutsakis, Konstantinos, , Qammaz, Ammar, Argyros, Antonis. **Complexity based investigation in collaborative assembly scenarios via non intrusive techniques**. In: *4th International Conference on Industry 4.0 and Smart Manufacturing. PROCDIA COMPUTER SCIENCE*, vol. 217, p. 478-485, Francesco Longo, Michael Affenzeller, Antonio Padovano, Weiming Shen, ISSN: 1877-0509, Upper Austria University of Applied Sciences - Hagenberg Campus-Linz, Austria, 2-4 November 2022, doi: 10.1016/j.procs.2022.12.243
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- C39. 2023 Panagou, S., La Cava, G., Fruggiero, F., & Mancusi, F. (2023, September). **Selective complexity determination at cost based alternatives to re-manufacture**. In *IFIP International Conference on Advances in Production Management Systems* (pp. 215-228). Cham: Springer Nature Switzerland.
- C40. 2023 Di Pasquale, V., Caterino, M., Riemma, S., Rinaldi, M., Fruggiero, F., & Iannone, R. (2023, October). **Analysis of strategies and models for industrial symbiosis in manufacturing ecosystems**. In *International Workshop on Autonomous Remanufacturing* (pp. 317-328). Cham: Springer Nature Switzerland.
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- C45. 2024 Sarda, K., Del Vecchio, C., Fruggiero, F., Mancusi, F., Menchetti, F., & Natale, R. (2024). **Physics-Enhanced Digital Twin based solution to control process state in a Steel Manufacturing plant.** *IFAC-PapersOnLine*, 58(8), 31-36.
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BOOKS

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