Automated Complex Installations

Module code:	Workload:	Semester:
MACI	150 h	(WiSe) Sem.
Credits:	**Duration:**	**Frequency:**
5	1 Sem.	Each winter term
Independent study:	**Class size:**	**Contact hours:**
90 h		4 SWS / 60 h
Module-No.:	**Exam.-No.:**	**Percentage of final score:**
7942	5380	PEM: 4,39; PuM, HI: 5,55
Language of instruction:	**Vers. BPO/MPO min.:**	**Internal: Code/Status**
English	MPO-2017	609 / aktiv

Type of course:

Seminar / lecture: 2 hours per week / 30 h, practical part: 2 hours per week / 30 h

Learning outcomes/Competencies:

- Students are able to assess machine concepts.
- Students know about design possibilities.
- Students have enhanced their conceptual skills.
- Students are able to develop strategic concepts.

Content/subject aim:

Lecture:

- Mechanical elements of automatized complex installations, pallets, fixtures, conveying systems
- Electrical elements / Hardware for automatization
- Basics of control systems and software concepts for complex interlinked machines, different types of hardware and software for bus-systems

• Introduction in specific programming

• Design and engineering of a complex installation, layouts, capacity, cycle time, simulation

• Specific project management

Practical Work:

• Splitting the complete production process in individual operations

• Calculation of cycle time

• Layout drafts

• Programming in VBA

Teaching methods:

Lecture, seminar, practical work, project work

Prerequisites for participation:

Basics of cutting manufacturing processes

Assessment methods / First Examinator / Second Examinator:

Elaborateness and colloquium / oral examination / Prof. Riegel / M.A. Kiwitt

Requirements to get the credit points:

Passed examination of this part of the course

This module is used in the following degree program: (in semester-no.)

(WiSe) M.Sc. Produktion und Management (WP)

(WiSe) M.Sc. Production Engineering and Management (WP)

(WiSe) M.Sc. Wirtschaftsingenieur der Holzindustrie (WP)

Weight of grade for final grade:

5/90: M.Sc. Produktion und Management

5/114: M.Sc. Production Engineering and Management

5/90: M.Sc. Wirtschaftsingenieur der Holzindustrie

Responsibility for module / Teacher of the submodule:

Prof. Dr.-Ing. Adrian Riegel et al.

Other information / literature:

Literature:

- Westkämper, E., Einführung in die Fertigungstechnik, Stuttgart 2001
- Weck, M., Werkzeugmaschinen, Berlin 2001
- König, W., Klocke, F., Fertigungsverfahren, Düsseldorf 1966
- Leondes, C.T.: Computer Aided and Intregated Manufacturing Systems. World Scinetific Publishing Co. Pte. Ltd. 2003
- Proceedings of the CIRP, Seminars on Manufacturing Systrems: different yearly published titles
- S. Brian Morriss: Automated Manufacturing Systems: Actuators, Controls, Sensors, and Robotics. Glencoe, 1995
- Proceedings of the International Conference on Industrial Engineering and Engineering Management – Theory and Apply of Indsutrial Management. Springer: different yearly published titles
- Shaw, M.J. (Ed.) Information-based Manufacturing – Technology, Strategy and Indsutrial Applications. Kluwer Academic Publishers, Norwell MA 2001
- Artiba, A.; Elmaghraby, S.E. (Ed.): The Planing and Scheduling of Production Systrems – Methodologies and Applications. Chapman & Hall, London 1997
- International Journal of Flexible Manufacturing Systems: Different titles
- Tullio Tolio: Design of Flexible Production Systems – Methodologies and Tools. Springer, Berlin, Heidelberg, 2009