



Production and logistics

This Master Research Unit (MRU) is part of the Production and Logistics research unit at Bern University of Applied Sciences Architecture, wood and civil engineering in Biel. Processes and procedures for the processing and secondary processing of wood are developed and optimised in this unit. There is a special focus on conceptualising production chains and their interfaces, from product data generation to automated manufacturing. The research unit plays a leading role in the use of robots in processing wood («Complete Processing Technology» project*). In addition, the unit has comprehensive experience in the sanding and milling of free-form bodies.

Another project area is surface refinement («Clear Coat» project*). Tools, processes and applications are developed in this area. In addition, the unit is working on new processes for joining and fastening wood («Woodclick» Project*).

The researchers in the unit are important contacts for the international wood industry in outfitting flexible manufacturing cells with instruments for feeding machines, assembly and processing. The Specific Research Unit has expertise in integrating RFID components, including designing the necessary software interfaces («RFID Wood Processing» project*).

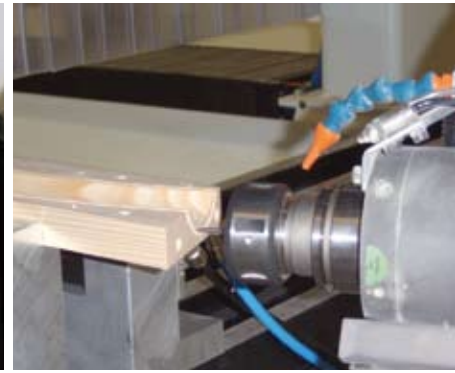
Course contents

Your studies are individualised and relevant for practice. You choose your major according to your personal goals. In the area of production and logistics you will develop your understanding of the automation of production processes in the wood and furniture industries, in simulation and in the area of process control. You will expand your knowledge in the area of manufacturing technology – including robotics and manufacturing processes – and in the integration of these technologies in operation control and management processes. This includes understanding production-related logistics and factory planning.

During your project work and while you work on your Master's thesis, you will participate in industry-related research projects. For example, such work may include the automatic, robot-supported manufacturing cell for the automatic production of window sashes developed by the research unit.

* Further information about the projects can be found in our project database under www.ahb.bfh.ch/pdb.





Within the Production and Logistics MRU you will be able to develop one of several of the following skill sets:

Automated Manufacturing

To succeed on the market, automated solutions down to a lot size of 1 must be used. You will expand your knowledge and experience in wood engineering to include production processes and techniques. In laboratories equipped with the latest technology you will learn about and test solutions on production machines and in automated manufacturing cells. This practice oriented work with automation solutions on the machine level, system level and operational level allows you to experience their incorporation into an industrial environment.

As a specialist for Automated Manufacturing in the wood processing industry you may work in innovative companies at a technical management level and in all other areas of company management. You will plan and implement the further development of the company's technology along with the related organisational and economic changes.

Robotics

Increasingly, robots are being used in the automation of handling and manufacturing processes. You will develop your understanding of application planning and programming for robots and of simulating robot applications. The possibilities for networking with other automated manufacturing systems and with manual tasks will be demonstrated. In addition to the robot-related requirements for safety and environmental logistics, the focus is on specific wood applications from round timber to complex finished parts.

As a specialist in Robotics you will work in technology supply companies in the wood industry and in particularly innovative wood processing enterprises.

Production Logistics

Today's production environment and the latest manufacturing machines require innovative solutions for internal logistics. In this environment you will become familiar with product identifications such as RFID or bar codes and with process design along the supply chain. Integrating today's production manufacturing into the company environment, both internally and externally, requires both product identification and quick, safe logistics technologies in the areas of storage, transportation, infeeding and quality control. On the bases of genuine projects, you will develop understanding of the current and future techniques and technologies in these areas.

As a specialist in Production Logistics, your tasks will concentrate on the development of organisational structures and on comprehensive company logistics. You will be responsible for the smooth functioning of the interfaces to external suppliers and customers and to internal points within the company.

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