Bern University of Applied Sciences

Area of competence Digital Manufacturing

Robotics testing laboratory at the Bern University of Applied Sciences in Biel.

Interdisciplinary and across institutes, we take on all technical production questions of the wood and the construction industry with a focus on industrial planning and production processes. This encompasses the efficient design, planning, and controlling of production and logistic processes including the processing of wood- and wood-based composite surfaces. We take advantage of result-oriented techniques such as robotics, RFID, 3D-scanning, rapid prototyping, and surface coating technologies.

Research competencies

Together with our industry partners, we work on projects that improve the process chain processing and transforming wood and wood-based materials. Our goals include:

– Improvement of surface quality, such as the online assessment of sanded wood surfaces (project WoodSurf)
– Optimization of powder coating (project Clearcoat)
– Development of environmental friendly connector technologies as mechanical connectors for wood construction components (project WoodClick) and for chemical connectors (project Lignofast)
– Holistic process control using RFID technology (project RFID wood processing)
– Resolution of interface problems for the improvement of data consistency (various projects)
– Use of modern technology, f.e., robotics, multiple axis equipment, scanning for wood processing (project holistic processing technology)

Services

We offer services covering the entire process chain, from data acquisition, construction, generation of manufacturing data and processing to surface coating. We work to solve data interface problems to assure data consistency. We are able to investigate the feasibility of your plans for automation with our high-tech production cells with integrated robots. We support you in the use of RFID technology, we conduct plant assessments, create material flow analyses, and we support you when optimizing your production processes. Our competencies are as follows:

– company assessment and layout planning
– data acquisition and CAD
– manufacturing data generation and manufacturing
– production control
– surface measurement
– surface coating
– automation using robots and / or RFID technology

Infrastructure

For the professional execution of services and research projects, we have two well-equipped manufacturing cells available, which include, among other things:

– 2 ABB robots
– KUKA-robot with cutting spindle
– Robot controlled sanding machines, routers, nail guns, screwing automates, adhesive guns
– Special cell for automated assembly (for example windows or furniture assembly)
– CNC machining center HOMAG
– 5 axis machine MAKA for the manufacturing of complex components
– PC-based SPS control for the entire cell
– surface measuring equipment with various sensors
– 3D scanning technology

Institute for Digital Economy in the Construction and Wood Industry IdBH

Business, production and construction processes, market research and business models: at the Institute for Digital Economy in the Construction and Wood Industry IdBH we can accompany you with our competences in digital transformation on your journey to tomorrow.

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