

Module Name	Module Code
Machine Milking	AEF-ds007
Module Coordinator	
Prof. Dr. Eberhard Hartung	
Organizer	
Faculty of Agricultural and Nutritional Sciences - Institute of Agricultural Engineering	
Faculty	
Faculty of Agricultural and Nutritional Sciences	
Examination Office	
Faculty of Agricultural and Nutritional Sciences - Examination Office	

ECTS Credits	6
Evaluation	Graded
Duration	one semester
Frequency	Only takes place during summer semesters
Workload per ECTS Credit	30 hours
Total Workload	180 hours
Contact Time	60 hours
Independent Study	120 hours
Teaching Language	English

Module Courses			
Course Type	Course Name	Compul- sory/Optional	SWS
Lecture	Machine Milking	Compulsory	1,7
Seminar	Machine Milking	Compulsory	1
Practical exercise	Machine Milking	Compulsory	1,3
Prerequisites for Admission to the Examination(s)			
Prerequisites for admission to oral examination are a passed seminar presentation (grade: pass/fail), active participation in group work, and regular visits of practical exercises are compulsory.			

Examination(s)				
Examination Name	Type of Examination	Evaluation	Compulsory / Optional	Weighting
Oral Examination: Machine Milking	Oral Examination	Graded	Compulsory	100
Further Information on the Examination(s)				
1.+2. period in summer semester 1. period in winter semester examiner: Dr. Haeussermann QIS: 300800 with examination 300810				

Course Content
<p>Design and function of milking parlors and systems, testing of milking machines, methods for teat scoring, evaluation of milking performance, interaction of machine milking and udder health, liner design characteristics, automation of working routines in automatic and conventional milking systems, sensors for milk yield and milk composition, legal regulations and standards for milking machines.</p> <p>Practical exercises: basic testing of milking machine, vacuum measurements during milking (milking-time tests), on-farm evaluation of the milking process, presentation of results.</p> <p>Seminar: latest research studies on different topics, prepared and presented by the students.</p>
Learning Outcome
<p>Students achieve advanced knowledge on the milking process and milking design characteristics. They achieve skills in operation and testing of milking machines and to assess impacts on milking process and udder health. In addition, students learn to work in groups, to prepare and present their results, and to analyze, present and discuss results published in peer-reviewed scientific journals.</p>
Reading List
<p>Mein, G.A., Reinemann, D.J. (2015): Machine Milking: Volume 1. ISBN:9781517603113 Bramley, A.J., Dodd, F.H., Mein, G.A., Bramley, J.A. (1992): Machine Milking and Lactation. Insight Books, Vermont, U.S.</p> <p>Copies of files presented, scientific journal papers, and textbooks. Further recommendations are given at the beginning of the lecture period.</p>
Additional Information
<p>Maximum number of participants: 24 - Up to 20 places will be allocated preferably to students in the Dairy Science master's program</p> <p>Enrollment by OLAT within workdays Monday through Friday in the 1st week of the 2. audit period of the preceding semester. The following information has to be provided for enrollment:</p> <p>matriculation number last name first name striven degree study program stu-Email</p> <p>The allocation of the places takes place in the 2nd week of the 2. audit period of the preceding semester. Notification will be sent to the stu-email address.</p> <p>Acceptance of the place by students only through participation at the first day of the course. Students without a place can get a place at the first day of the course by move-up procedure.</p>

Use	Compulsory / Optional	Semester
Master, 1-subject, Agricultural Sciences, Agricultural Economics, (Version 2017)	Optional	1.
Master, 1-subject, Agricultural Sciences, Agricultural Economics, (Version 2013)	Optional	1.
Master, 1-subject, Agricultural Sciences, Agribusiness, (Version 2017)	Optional	1.
Master, 1-subject, Agricultural Sciences, Agribusiness, (Version 2013)	Optional	1.
Master, 1-subject, Agricultural Sciences, Crop Sciences, (Version 2017)	Optional	1.
Master, 1-subject, Agricultural Sciences, Crop Sciences, (Version 2013)	Optional	1.
Master, 1-subject, Agricultural Sciences, Animal Sciences, (Version 2017)	Optional	1.
Master, 1-subject, Agricultural Sciences, Animal Sciences, (Version 2013)	Optional	1.
Master, 1-subject, Agricultural Sciences, Environmental Sciences, (Version 2017)	Optional	1.
Master, 1-subject, Agricultural Sciences, Environmental Sciences, (Version 2013)	Optional	1.
Master, 1-subject, Dairy Science, (Version 2017)	Compulsory	1.
Master, 1-subject, Nutritional and Food Science, (Version 2013)	Optional	1.
Master, 1-subject, Nutritional and Consumer Economics, (Version 2017)	Optional	1.
Master, 1-subject, Nutritional and Consumer Economics, (Version 2013)	Optional	1.