Course information system	Year of study 2019-2020
Study programme	Horticulture and Arable Farming
Course unit code	MN3407
Course unit title	Smart Farming
Location	HAS University of Applied Sciences, 's-Hertogenbosch, The Netherlands
Coordinator (afk.)	Annelies Buijtels/Lenny van Erp
Type of course unit (year)	Minor third year
Language of instruction	English/Dutch
Credits (ECTS)	15
Moment of delivery (year and term)	September 2019 to November 2019
Prerequisites	To participate in this minor, you must have completed your first year college and have earned at least 40 ECTS in your second year. In addition, students should have a broad interest in crop science, livestock production and food, as well as an interest in data and technology
Application deadline	22 March (HAS-students)/1 May 2019 (external students)
Wijzigingen t.o.v. vorig jaar	No major changes
Course content (elaborate description of course content, in which the following questions are answered: - **Why this course (necessity and importance)?** - **Which themes are discussed?** - **Why sign up for this course? (think also of students outside of HAS University of A.S.)** **Max 350 words**	Do you want to learn how to increase sustainability in the broad discipline of crop science, livestock production and leisure using precision technology and data? **Expand your field of expertise in projects where, for example, you will:** • combine location and activity data for the early detection of claw diseases of cows; • measure soil humidity and temperature using precision sensors to improve the quality of golf fields; • analyse data from soil and crop sensors to predict and improve yields of different crops. Smart Farming provides a learning environment for students with various backgrounds in which they acquire and apply knowledge and gain skills for developing innovative solutions. **Themes to be discussed are:** • New technologies in different sectors such as health care and leisure and examples of smart farming in different agricultural sectors • Cross overs: gaining knowledge and skills from a multi-disciplinary perspective to find solutions for your own field of expertise • You will develop your own set of tools: learning techniques such as statistics, biomimicry, sensing, robotics and data science covering different sectors (Big) data: from data to information using the data cycle: data acquisition, storage, analysis, visualisation, actions and evaluation • Sustainability: people, planet, profit of smart farming

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- Implement the previous themes in projects intended for different stakeholders

Why sign up for his course?
You will be prepared for the future of Smart Farming by:

- working in a multidisciplinary project
- looking at technical and biological aspects;
- handling the complex data cycle;
- being inspired by innovative precision technology;
- following a diverse program of (guest)lectures from experts;
- developing your talents and show your fellow students your own field of expertise

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<tr><td>Learning outcomes (knowledge, skills, attitude and behavior)</td><td colspan="4">You will be able to
1) Describe current precision techniques from different sectors and the application in your own field of expertise
2) Use the data analysis cycle in a specific field
3) Determine the relevance of each step in the data cycle
4) Evaluate the relevance of the end result of the data cycle for sustainable development
5) Reflect on one’s progress in knowledge and skills in the field of smart farming and multidisciplinary team work</td></tr>
<tr><td>Learning activities and teaching methods (elaborate description)</td><td colspan="4">Lectures and guest lectures, excursions</td></tr>
<tr><td rowspan="4">Learning activities and teaching methods</td><td colspan="3">Method</td><td>Study load (hours)</td></tr>
<tr><td colspan="3">Project</td><td>Ca. 210</td></tr>
<tr><td colspan="3">Lectures and practical training</td><td>Ca. 210</td></tr>
<tr><td colspan="3">Total</td><td>420</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>Title</td><td>Author</td><td>Status</td><td>Type</td><td>Code</td></tr>
<tr><td>Study manual</td><td>Annelies Buijtels/ Lenny van Erp</td><td>Via Blackboard</td><td></td><td></td></tr>
<tr><td colspan="5">All other study materials will be provided via Blackboard</td></tr>
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<tr><td>Time table</td><td colspan="4">To participate in this minor you must be full time available. No timetable available yet.</td></tr>
<tr><td>Costs</td><td colspan="4">€ 100,-- for external activities, excursions and literature</td></tr>
<tr><td>Remarks</td><td colspan="4"></td></tr>
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