

The Royal Agricultural University

Programme Specification:

MSc Agricultural Technology and Innovation

Postgraduate Diploma in Agricultural Technology and Innovation

Postgraduate Certificate in Agricultural Technology and Innovation

**(RAU Joint Institute for Advanced Agritechnology at
Qingdao Agricultural University (RAU at QAU))**

2026-27

PROGRAMME SPECIFICATION [ACADEMIC YEAR 2026-27]

This Programme Specification is designed for prospective students, current students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content of each module can be found in the Module specifications.

Section 1 – Material Programme Information

Criteria	Detail
Validating body	The Royal Agricultural University
Teaching Institution	Qingdao Agricultural University (QAU)
Subject Area	Other Subject Areas (Partners)
Entry Award(s)	MSc Agricultural Technology and Innovation
Final Award and exit route(s)	Postgraduate Certificate in Agricultural Technology and Innovation Postgraduate Diploma in Agricultural Technology and Innovation MSc Agricultural Technology and Innovation
Programme title	MSc Agricultural Technology and Innovation
Location(s) of study	Qingdao Agricultural University (QAU)
Full time study	2 Years
Part-time study	N/A
Language of study	English
Programme start month	September
Period of validation	September 2023 – August 2028
Name of Professional, Statutory or Regulatory Body	Not applicable
Type of Accreditation	Not applicable
Accreditation due for renewal	Not applicable
UCAS Code	Not applicable
Quercus Code	QAUATSM1F
HECoS Code	Not applicable
QAA Subject Benchmark Statement(s) and other reference points	QAA UK Quality Code of Higher Education (2024)
Academic level on Framework for Higher Education Qualifications (FHEQ)	Level 7
Approval at AQSC	July 2023

Entry Requirements

Criteria	Detail
Entry requirements (this should be the standard University entry requirements unless otherwise approved by the Academic Board)	A minimum of GPA 2.9 which is equivalent to 2.2 honours degree from a UK university. Mature candidates with significant relevant work experience and lower academic qualifications may also be considered for entry, following interview with the programme managers.
English language	English language at or above equivalent IELTS score of 6.5 average with no element below 5.5. or Obtained first degree in an English-speaking country. or Pass RAU internal integrated English language proficiency (EAP reading and writing) test 60%.

Section 2 - Programme Structure

The structure of all University awards complies with the University's [Academic Regulations for Taught Programmes](#) which includes information about the:

- Rules for progression between the stages of a programme;
- Consequences of failure for referrals, compensation and exist awards;
- Calculation and classification of awards.

MSc Agricultural Technology and Innovation (180 credits)

The accumulation of 180 credits through the assessment of programme elements as detailed below:

Year 1:

Semester 1: Students will undertake English language studies

Semester 2: Study modules

Module code	Module title	Level	Credit value	Core/ Elective	Semester
Q4000	Sustainable Agricultural Systems	7	30	Core	2
Q4233	Computing and Information Technology in Precision Agriculture	7	15	Core	2
Q4725	Environmental Technology and Innovation	7	15	Core	2
Q4413	Research Skills	7	15	Core	2

Year 2:

Semester 3: Study modules

Semester 4: Dissertation writing

Module code	Module title	Level	Credit value	Core/ Elective	Semester
Q4001	Leadership and Business Strategy	7	30	Core	3
Q4723	Crop Production Technology and Innovation	7	15	Core	3
Q4726	Livestock Production Technology and Innovation	7	15	Core	3
Q4414	Dissertation	7	45	Core	3+4

Postgraduate Diploma in Agricultural Technology and Innovation (120 credits)

Year 1:

Semester 1: Students will undertake English language studies

Semester 2: Study modules

Module code	Module title	Level	Credit value	Core/ Elective	Semester
Q4000	Sustainable Agricultural Systems	7	30	Core	2
Q4233	Computing and Information Technology in Precision Agriculture	7	15	Core	2
Q4725	Environmental Technology and Innovation	7	15	Core	2

Year 2:

Semester 3: Study modules

Module code	Module title	Level	Credit value	Core/ Elective	Semester
Q4001	Leadership and Business Strategy	7	30	Core	3
Q4723	Crop Production Technology and Innovation	7	15	Core	3
Q4726	Livestock Production Technology and Innovation	7	15	Core	3

Postgraduate Certificate in Agricultural Technology and Innovation (60 credits)

Year 1:

Semester 1: Students will undertake English language studies

Semester 2: Study modules

Module code	Module title	Level	Credit value	Core/ Elective	Semester
Q4000	Sustainable Agricultural Systems	7	30	Core	2
Q4233	Computing and Information Technology in Precision Agriculture	7	15	Core	2
Q4725	Environmental Technology and Innovation	7	15	Core	2

Section 3 – Programme overview and Programme Aims

The aims and objectives of the programme are to support the RAU and QAU's: **Vision**, *A world where all communities thrive in harmony with nature*; **Mission**, *Equipping a new generation to thrive through change*; and **Purpose**, *To cultivate care for the land and all who depend on it*. The MSc Agricultural Technology and Innovation programme benefits from research-led teaching from key members of the following RAU's research groups: *Sustainable and regenerative agriculture, Livestock health and welfare, Food safety, quality and security, Environment and soil health*.

Technological and digital advances in the agricultural sector and shifts towards more sustainable agroecological/regenerative crop production have created a growing demand for new skills. Developments in sensors, robotics, automation, analytics and telematics are enabling new and sophisticated ways of managing agricultural practices, providing new approaches to reduce detrimental impacts on nature and the environment, and build back biodiversity.

Precision agricultural technology, as part of the digital age of agriculture, is swiftly gaining popularity among UK farmers as well as the world's farming community and its primary producers due to the increasing need for optimum production within finite planetary resources. New advanced and innovative systems must be adopted to help mitigate changing weather patterns due to global climate change and to enhance crop productivity and yield.

Technologies, such as real-time farm monitoring, local weather monitoring, remote sensing, and precision application of field requirements, enable farmers and growers to increase the yield with reduced human effort, environmental impact and wastage. Moreover, these technologies enable farmers and growers to manage their resources and access real time information through their smartphones, thereby offering greater accessibility and ease of operation. However, major barriers to adoption include affordability and accessibility of new tools and solutions, and lack of awareness of the benefits of precision agriculture among end users, particularly in low- and middle-income countries.

There are escalating concerns regarding the sustainable supply of resource inputs such as water, soil and fertilisers. Precision usage and adaptable management strategies will help with resource conservation whilst minimising carbon expenditure. Real-time environmental monitoring using state-of-the-art sensing combined with advanced computing (AI/machine learning) will provide opportunities for better, more timely management of productive and natural landscapes.

The combination of a wider selection of deployable advanced technologies, digital solutions and precision agricultural strategies will increase the demand for highly skilled specialists. Forward looking businesses will need talented, well-educated and skilled graduates capable of delivering effective contributions from the outset of their careers.

This course is suitable for students from a variety of academic and professional backgrounds, including agriculture, business management, engineering/agricultural engineering or software development.

The aims of this programme are to produce graduates that:

- Have a comprehensive understanding of the new and innovative technologies being applied in sustainable and precision agriculture and for the sustainable management of the farming and natural landscapes.
- Have the ability to use their knowledge and skills to develop innovative solutions to novel problems, generate new ideas, develop new technologies, and adapt and update established methods, techniques and strategies.
- Are technically adept, accomplished, and fluent with technical aspects of the capture, processing, interpretation and application of digital agroecological and environmental data.
- Have an understanding of the principles and practice of agricultural and horticultural production and a full awareness of the potential applications and benefits of new technologies.
- Have an applied management, enterprise and entrepreneurial skill set in a range of agricultural technology systems contexts.
- Are able to communicate in appropriate ways to diverse audiences, and to clearly and effectively present concepts and research findings to interested individuals, groups, businesses, and government agencies and institutions.
- Are committed to the improvement of agriculture, horticulture, and the care of the natural environment.
- Are responsible and considerate of the ethical issues in their work.
- Are competent researchers with the ability to plan, design, and conduct research activities, and synthesise, critically analyse and interpret, and write up their findings.

- Are lifelong learners, with motivation to sustain their personal, professional and career development.

Section 4 – Programme Sustainability

The programme, MScs in Agricultural Technology and Innovation, combines learning about sustainable agriculture and state-of-the-art technologies and innovations in precision agriculture, environmental monitoring, crop and livestock management. As such, the programmes are fundamentally grounded in the emerging advances that are underpinning sustainable, regenerative agriculture, reducing harmful inputs, outputs and waste, to ensure a just agricultural transition to food systems that operate within our planetary resources, restoring biodiversity and mitigating climate change.

This addresses several UN Sustainable Development Goals including, Zero Hunger, Responsible Consumption and Production, Life on Land, and Climate Action.

Section 5 – Programme intended learning outcomes

The aims and objectives of the programme are to support the RAU and QAU's: **Vision**, A world where all communities thrive in harmony with nature; **Mission**, Equipping a new generation to thrive through change; and **Purpose**, To cultivate care for the land and all who depend on it.

The MSc Agricultural Technology and Innovation aims to provide multi-skilled graduates able to tackle technological challenges related to agriculture and the environment using innovative approaches.

On successful completion of the named award, students will be able to demonstrate the following Learning Outcomes (LOs):

Knowledge and Understanding

LO no.	On successful completion of the named award, students will be able to:	Module Code/s
1.	Understand and differentiate between types of agricultural production systems (both large- and small-scale) and critically evaluate their contribution to sustainable agriculture.	Q4000, Q4723
2.	Explain, appraise and critically evaluate a range of technical systems, devices, strategies and new innovations used in digital agriculture related to livestock and crop production.	Q4413, Q4723, Q4726
3.	Explain, appraise and critically evaluate a range of environmental technologies and innovative practices used for the sustainable management of the environment and natural resources, understanding the impact of climate change on natural resources and agricultural processes and outcomes.	Q4413, Q4233, Q4725
4.	Recognise how existing and new devices, technologies and approaches in agricultural contexts can be used to collect and use data to aid farm/agricultural business operations and management.	Q4233, Q4723, Q4726, Q4725 Q4001

5.	Understand the role of entrepreneurs in the creation of business ventures and recognise, assess and articulate start-up opportunities using a business plan and pitch.	Q4001
6.	Critically evaluate and analyse agricultural technology solutions and systems with respect to a range of production and management requirements.	Q4413, Q4726, Q4725, Q4723, Q4001
7.	Construct and apply digital methods to understand how digital innovators design and build new technology.	Q4233

Intellectual, Professional, Key skills

LO no.	On successful completion of the named award, students will be able to:	Module Code/s
1.	Develop lifelong skills which enable the synthesis and critical analysis of data and information from a wide range of sources to support and evaluate solutions to practical and real-world problems.	Q4000, Q4413, Q4414
2.	Show creativity and manage the creative process.	Q4000, Q4725, Q4723, Q4726, Q4413, Q4414
3.	Identify and solve complex problems holistically by evaluating issues and options, and implementing and reviewing decisions.	Q4000, Q4725, Q4723, Q4726, Q4413, Q4414, Q4001
4.	Devise and sustain an argument supported by valid and significant evidence.	Q4000, Q4725, Q4723, Q4726, Q4413, Q4414, Q4001
5.	Manage time and resources appropriately in both individual and team situations to enable successful project delivery.	Q4726, Q4725, Q4723, Q4413, Q4414
6.	Citing and referencing sources of data and information with academic integrity in an appropriate manner whilst ensuring the avoidance of plagiarism.	All modules

Programme specific skills

LO no.	On successful completion of the named award, students will be able to:	Module Code/s
1.	Undertake project management for agricultural technology and innovation assessments, analyse and report results effectively and appropriately.	Q4725, Q4723, Q4726, Q4414
2.	Communicate through a variety of mediums on topics relating to agricultural technology and innovation to wide range of audiences.	Q4000, Q4725, Q4723, Q4726, Q4001

3.	Conduct research into agricultural technology, systems and management issues either individually or as part of a team through research design, hypothesis creation, data collection, analysis, synthesis and reporting.	Q4413, Q4414
4.	Illustrate the role of self-reflection and critical analysis in one's own personal attributes for a range of situations including resilience, open-mindedness, reflection, motivation, professional behaviours, and employability.	All modules

Section 6 – Approach to Learning and Teaching delivery

The format of the programme is a mixture of residential learning and blended learning approaches supported by a range of learning materials and activities presented on the RAU International VLE.

A Postgraduate Certificate (PGCert) and Postgraduate Diploma (PGDip) can be obtained by the successful completion of modules accumulating 60 credits (PGCert) or 120 credits (PG Dip) as specified in the module map in section 2.

The delivery is through a combination of lectures, seminars, speakers, case studies, workshops and with activities presented through the Virtual Learning Environment (VLE) which is also used to host other supporting material including videos, webinars, quizzes, podcasts and other relevant presentations.

Teaching will include group discussions, tutorials, facilitated discussions, workshops, guided independent study and a research project. Assessment will be a balance between individual and group work and will consist of a range of critical reports, written examinations, poster presentations, sustainability plans, policy summaries, oral presentations, critical reflections and a dissertation / applied project.

Each module is supported by a comprehensive resource list that is maintained through the RAU Library Talis system.

Teaching mode:

In the first semester, students will focus on learning English for Academic Purpose (EAP) to improve their English proficiency.

In semesters two and three, the teaching mode will be delivered through a phased approach combining preparation, face-to-face teaching, and formative and summative assessments. Details of module arrangements for each semester can be found in Section 2.

During preparation phase, based on the Intended Learning Outcomes (ILOs), lecturers will provide assessment briefs, set up all reading materials, pre-recorded videos, and tasks on international VLE module page, ready for students to self-study.

The aim of the face-to-face teaching phase is to make sure students understand and can apply new their new knowledge for all intended learning outcomes, based on the structure outlined in preparation weeks.

During the formative assessment phase, students will discuss questions with peers and lecturers through module page forum, email and/or other virtual communications. During this phase, lecturers will set up formative assessments to monitor student learning and provide ongoing feedback that can help students to identify their strengths and weaknesses and target areas to achieve intended learning outcomes. A series of module content relevant seminars may be scheduled and delivered by members of Joint Institute Industry and Entrepreneurship Committee who are all local, national or international successful entrepreneurs. The formative phase will develop students' achievement towards ILOs and will support their future career development.

In semester 4, students will focus on the completion of their dissertation.

Section 7 – Approach to Assessment

Assessments are designed to appraise individual capabilities fairly and consistently. We use clear, descriptive assessment guidelines (made available to students) to grade coursework and examinations and to aid classification. Lecturers communicate their expectations clearly to students and use explicit schema to facilitate consistency of marking within and between modules and to ensure good feedback on individual performance. All examinations and coursework assessments that contribute to degree classifications are subject to scrutiny by the External Examiners.

Assessments are designed to test analytical and other cognitive capabilities in relation to particular module aims and content. Coursework assignments such as individual essays, reports, case study analyses, individual and group-based reports, presentations, and various technique- oriented assessments are used to test these skills.

The Dissertation is the capstone demonstration of postgraduate skills, requiring students to conceive, justify, design in detail and execute a substantial piece of academic research. For the most able postgraduate students, the Dissertation can generate work of a standard appropriate for submission to practitioner and academic journals in agriculture, agroecology, business and management.

In every module, we place high value on students being able to demonstrate effective communication in its various forms. This priority is reflected not only in how assignments are specified, but also in how they are marked - good command of written and spoken English is vital for work-based projects and for graduate employment.

Some modules have a teamwork requirement and in some, there are group assignments, assessed via presentations and reports. All group assignments allow for an element of individual assessment, in order to recognise differences in individual performance where appropriate. Peer feedback can also play a significant part in team activities and is encouraged.

Overall, the programme is taught and assessed through:

Learning and Teaching			Assessment		
Directed	Independent	Placement	Exam	Coursework	Practical
19.6%	80.4%	0.0%	0.0%	97.5%	2.5%

Section 8 – Course work grading and feedback

Assessment is an integral part of the learning experience of students. All University programmes are assessed by a range of assessment activities, each developed to provide the most appropriate means of demonstrating the student's achievement of a specified learning outcome. An assessment may assess more than one learning outcome.

The University operates standard pass criteria which can be found in the [RAU Academic Regulations](#) (paragraphs 116-156).

The normal basis for awards will be the overall average score in the final assessment, graded as follows:

Distinction weighted average of	70% and above
Merit weighted average of	60% - 69%
Pass weighted average of	40% - 59%
Fail weighted average of	0% - 39%

In addition to assigning a percentage mark to each assessment, the tutor will also provide feedback comments; focussing on the strengths and weaknesses of the work. All marks (grades) are subject to internal moderation and external scrutiny by the programme's External Examiner(s), and final confirmation at the exam board. Students must ensure they retain all coursework in case the External Examiner(s) wishes to see it.

Section 9 – RAU Graduate Framework

At the RAU we have chosen five values to underpin our learning community. These are the values which we will all work by and for which we want the RAU to be known for. We aim for our graduates to be:

Collaborative

We believe in the power of working together. We are stronger as a community of practice - inspiring each other, identifying shared goals, and providing reciprocal support leads to greater success.

Open-minded

We are receptive to new ideas and we value the diversity of experiences and skills. We are committed to listening to everyone across the RAU community.

Resourceful

We adopt creative approaches to achieve our goals while setting higher standards, promoting professionalism and sustainability.

Responsible

Individually and collectively we take accountability for our actions working with integrity to achieve the highest ethical standards.

Inclusive

We acknowledge the fundamental value and dignity of all individuals and are committed to maintaining an environment that seeks to eliminate all forms of discrimination and respects diverse traditions, heritages, and experiences.



We inspire our graduates...

- | | |
|---|--|
|  RAU VALUES Collaborative, Open-minded, Resourceful, Responsible & Inclusive. | |
|  PROFESSIONAL APPROACH
To be reflective, self-aware team members with excellent communication skills approaching new challenges with flexibility and confidence. |  INNOVATIVE THINKER
To have commercial acumen and curiosity, seeking innovative solutions to the real-world. |
|  SUSTAINABLE MINDSET
To commit to environment and regeneration, demonstrating an understanding of global complexity and system thinking. |  TECHNICALLY SKILLED
To enter the workplace as technically and digitally skilled practitioners who value practical knowledge and scientific evidence. |

Section 10 – Progression

A combination of a comprehensive appreciation of the wide range of new and innovative technologies in digital agriculture together with an understanding of the demands of commerce and business will ensure graduates of this course are fully equipped to make effective contributions to the field of digital agriculture. Graduates are likely to be in demand as new companies form, and established organisations and enterprises move into this new and dynamic sector.

This course is designed to allow graduates to develop their skills and abilities to a level commensurate with starting a career across a range of opportunities and obtain employment in:

- The high-tech agricultural and environmental sectors
- Industries allied to crop and animal production
- Technical consultancy
- Government and international agencies
- The development of new companies through entrepreneurial initiatives
- Research institutions

Potential employment opportunities include:

- Agricultural and horticultural engineering
- Information technology
- Resource appraisal

- Agronomy
- Farm management

The course has a strong academic foundation, including a period of independent study that provides an opportunity to engage with sector specialists in a professional capacity.

The course has a well-qualified team involved in its delivery, with academic excellence and strong industry contributions from experienced leaders from a variety of agri-technology based businesses.

The University has links with a wide range of businesses, through our local Growth Hub, Chamber of Commerce, Enterprise partnership and 177 years of successful Alumni, and RAU AT QAU JI Industry and Entrepreneurship Committee which has hundreds of committee members who are all local, national or international successful entrepreneurs.

Students may also choose to further their academic studies with an MSc by Research and/or PhD.

Section 11 – Student support, wellbeing and counselling

Both RAU and QAU offer a wide range of support to students including practical advice and guidance as well as emotional support.

Disability and Neurodivergent support

We support students with a range of disabilities, learning difficulties, and other health and mental health conditions, helping them to access funding via [the Law of the People's Republic of China on the Protection of Persons with Disabilities](#).

When students inform Student Office they have a disability, they will be offered support based on your specific needs which can include:

- **Alternative exam arrangements** such as extra time, rest breaks, or a smaller room.
- **Access to support workers** such as study skills tutors, specialist mentors, readers and scribes.

Mental Health Support

The RAU China team will work closely with RAU China Office and QAU team to support students with the ups and downs of university life, offering drop-in sessions, providing expert advice and support for students in crisis or with more complex needs, and together the team runs events and campaigns throughout the year to encourage positive wellbeing.

Academic Support Tutor Programme

All students have access to the Academic Support Tutor (AST) programme, which provides high-quality academic support for students. ASTs provide timetabled group tutorials and individual support for students who are most at risk. Group tutorials focus on providing high-

quality academic support at the appropriate academic level; advice and guidance in relation to the course; and advice about making study choices on the course (in line with the AST Handbook). Individual support focuses on continuation and may be in person or online.

Section 12 – Enhancing the Quality of Learning and Teaching

The programme is subject to the University's rigorous quality assurance procedures which involve subject specialist and internal peer review of the course at periodic intervals, normally of 6 years. This process ensures that the programme engages with the applicable national Subject Benchmarks and references the Framework for Higher Education Qualifications.

All programmes are monitored on an annual basis where consideration is given to:

- External Examiner's Reports
- Key statistics including data on retention and achievement
- Results of the Student Satisfaction Surveys
- Feedback from Student Course Representatives
- Annual Programme Monitoring

Although this programme is taught in Qingdao Agricultural University (QAU), China, it will be managed by the RAU Joint Institute (JI) for Advanced AgriTechnology at Qingdao Agricultural University (RAU AT QAU). The RAU AT QAU will be managed by the Joint Management Committee (JMC), which will be chaired by the President of QAU, with a Deputy president / chair from the RAU. All academic matters will be managed by the Academic Committee (AC) according to RAU's Regulations for undergraduate degrees. The AC will be chaired by a senior member of RAU staff and will report to the RAU's Academic Board.

Students reading for this MSc degree will effectively have a contract with the Royal Agricultural University that consists of:

- the terms laid out in the Student Contract document
- this Programme Specification and associated Module documents (Module Reference Sheets, Handbooks etc)
- the RAU's [Regulations](#) and [Policies](#) (adapted for the JI) including the University's [Admissions Policy](#).