Automation & Digital Agriculture Specialist Program - Streams
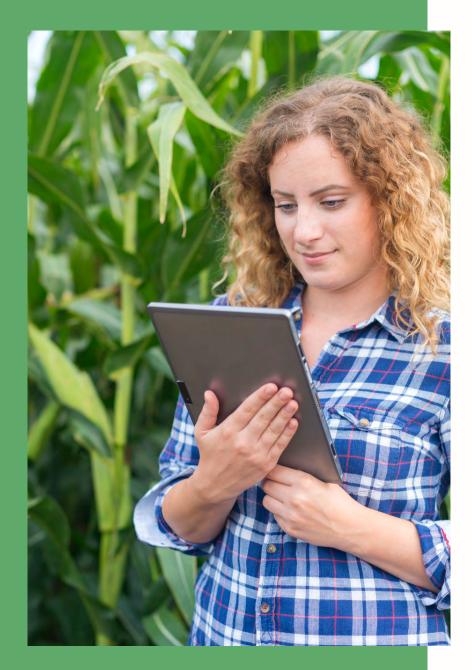
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Upskill Canada
POWERED BY palette skills

Palette Skills' Automation and Digital Agriculture Specialist program is an 8-week accelerated hybrid training that equips participants with digitization skills for agricultural production.

Funded by the Government of Canada
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Canada

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Palette Skills and the Automation and Digital Agriculture Specialist Program

[Palette Skills](#) connects companies with the talent they need to grow through its unique upskilling model. In the wake of its successful upskilling programs in digital agriculture, tech sales, and cybersecurity, and with the support of Innovation, Science, and Economic Development Canada, Palette Skills recently launched [Upskill Canada](#) as an ambitious new platform to help businesses in different high-growth industries create their own upskilling programs.

Palette Skills' [Automation and Digital Agriculture Specialist](#) program is an 8-week accelerated hybrid training that equips participants with automation and digitization skills for agricultural production. With a focus on employment, and commitment to a 75% job offer rate for participants, the program offers hands-on learning in emerging technologies including GIS, IoT, drones, AI, and robotics.

About the Program Streams

The Automation and Digital Agriculture Specialist program has been designed to meet the needs of employers in digital and precision agriculture. As a result of consultation with key industry players, we've created three main streams that meet the needs of employers. These streams are: Agribusiness and Sales; Industrial, Technical, and Professional; and finally the Data Analyst and Programmer.

A Agribusiness and Sales

The Agribusiness and Sales stream focuses on the business and management aspects of the agricultural industry. Professionals in this stream learn how to navigate the intersection of agriculture and business operations. They understand the unique challenges and opportunities in the agricultural sector, and work to optimize productivity and profitability.

Key skills for agribusiness professionals may include strategic planning, financial and risk management, supply chain management, marketing strategies and campaigns, branding and positioning, market analysis and forecasting, business development and sales, customer relationship management, and knowledge of relevant agricultural policies, in addition to strong soft skills such as communication and negotiation, adaptability, problem-solving, and critical thinking.

Job roles in this specialization include agricultural consultants, farm managers, agri-marketing managers, agricultural economists, agricultural finance analysts, agricultural sales representatives, agronomists, supply chain managers, and more.

B Industrial, Technical, and Professional

The Industrial, Technical and Professional specialization emphasizes the technical and professional aspects of the digital agriculture industry. Professionals in this stream are skilled in leveraging technology and applying it to various agricultural processes and systems. They work with advanced machinery, precision agriculture tools, automation technologies, and other cutting-edge solutions to enhance productivity, efficiency, and sustainability in farming operations.

Key skills for the Industrial, Technical, and Professional stream can include knowledge of design, fabrication, operation, and maintenance of machinery and equipment, proficiency in using technologies, familiarity with robotic systems and automation, understanding data collection devices, ability to troubleshoot technical issues and perform basic repairs, expertise in engineering principles and practices, ability to interpret technical drawings and specifications, and proficiency with engineering software and tools.

Job roles for this stream include precision agriculture specialists, agricultural equipment technicians, automation and robotics technicians, agricultural engineers, farm technology consultants, drone operators, irrigation specialists, farm systems analysts, and machinery sales representatives.

C Data Analyst and Programmer

The Data Analyst and Programmer specialization focuses on the analysis and utilization of data to drive insights and innovation in the agricultural sector. Professionals in this stream are proficient in data analytics, programming, and statistical modeling, and they use these skills to extract valuable information from agricultural data sets. They apply data-driven approaches to optimize crop yields, predict market trends, improve resource management, and develop innovative solutions for sustainable agriculture.

Key skills for this stream include data collection and management, data cleaning and preprocessing, statistical analysis and modeling, machine learning and predictive modeling, data visualization and interpretation, programming languages (such as Python, R or SQL), data mining and exploration, algorithm development and optimization, software development methodologies, front- and back-end development, database management and design, web and mobile applications development, API development and integration, cloud computing platforms and devices, version control and collaboration tools, as well as domain knowledge.

Careers in this specialization include agricultural data analysts, precision agriculture programmers, data scientists in agriculture, GIS analysts, agricultural research analysts, software engineers, software architects, and agronomic modelers.

General Program Qualifications (all streams)

To be eligible to apply for any of the program streams, you need to have the following mandatory qualifications:

Residency:

- Reside in a province in which the program is taking place.

Canadian status:

- Legally eligible to work in Canada.

Amount of work experience:

- An applicant meets the three-year work experience requirement when they have accumulated three years of full- or part-time work experience that is completed outside of full- or part-time studies (high-school or post-secondary).

- Work experience can be a combination of full-time paid work, part-time paid work, and/or full-time volunteer work. It does not need to be completed with the same employer or type of role, and the applicant can hold multiple part-time jobs, or a combination of a part-time job and part-time volunteer position in order to qualify.

Language requirements:

- English language CLB Level 8 or an overall IELTS academic score of 6.5.

Commitments:

- Committed and ready to transition into the agriculture technology industry, in a full-time role upon completion of the program.

- Committed to completing required assignments and attending the program (mandatory class hours of 156 and optional class hours of 43).

- Able to complete assignments and challenges outside of scheduled live instruction time.

Transferable skills:

- You are a strong communicator.

- You are coachable.

- You enjoy Technology and can navigate Zoom and other tech platforms with ease.

- You are organized and goal-oriented.

- You have a growth mindest.

Qualified Participants Profiles per Stream

The Automation and Digital Agriculture Specialist program is designed to meet the needs of industry, so individuals who fit into one of the program's three streams will be ideal participants. To ensure suitability, potential participants should bring transferable skills from previous life and work experiences, along with specific skills that qualify them as strong candidates for this program.

A Agribusiness and Sales

Education and work experience

- Completed a minimum of a bachelor's degree program in Business, Finance Administration, Marketing, or a similar/related field.
- Plus 3 years of work experience in a related field.
- Or combined experience of a post-secondary diploma and 5 years of experience in related fields and experienced in using/working with technology adaptation, project management, and/or agriculture industry experience.

Soft skills

- Collaboration.
- Ability to work independently and in a team.
- Excellent written and oral communication skills.
- Strong relationship-building skills.
- Interpersonal skills.
- Problem-solving.
- Creativity.
- People management experience.
- Comfortable with finance and math.

Hard skills

- Knowledge of Microsoft Office Suite - including Excel.
- Being able to write a business case.
- Equivalency of grade 12 math - need to enjoy math & be comfortable with spreadsheets.

Hard skills that can be an asset

- Project Management.
- Business Acumen.
- Product Marketing.
- Customer Service/Customer Success.
- Sales.

B Industrial, Technical, and Professional

Education and work experience

- Completed a minimum of a bachelor's degree in science and technology related fields or a technician degree (electrician, carpentry, lab technician).
- Plus 3 years of work experience in a related field.

Soft skills

- Leadership.
- Strong communications skills.
- Attention to detail.
- Ability to work independently.
- People management experience.

Hard skills

- Familiarity with Microsoft Office Suite including - Word and Excel intermediate.
- Asset to have production management experience.
- Knowing how to coordinate scientific research.

Hard skills that can be an asset

- Familiarity with SOP (Standard Operating Procedures).

C   Data Analyst and Programmer

Education and work experience

- Completed a minimum of a bachelor's degree program B.A./B.S. or computer science.
- Plus 3 years of work experience in a related field.
- Or combined experience of a post-secondary diploma and 5 years of experience in related fields and experienced in using/working with technology, data analysis, and programming.

Soft skills

- Excellent communication skills (oral & written).
- Time management.
- Strong attention to detail.
- Collaboration/Teamwork.
- Strong analytical and problem-solving skills.
- Ability to communicate data findings.

Hard skills

- Proficient in Excel advance skill set.
- Must have previous programming experience .
- Ability to manage large datasets.
- Ability to create dashboards and reports.
- Mathematical & advanced statistical skill set.
- People management experience.

Hard skills that can be an asset

- Experience in Tableau, Power BI an asset (opens up opportunities for other roles).

Employers Profiles per Stream

To help you determine the suitability of the Automation and Digital Agriculture Specialist program for your company, we've outlined profiles of companies that align with three streams.

A   Agribusiness Stream

Agrochemical companies (crop-protection companies): These businesses develop and market agricultural chemicals, including fertilizers, pesticides, and herbicides. They often provide solutions for crop protection, nutrition, and enhancement.

Seed and fertilizer companies: Seed companies specialize in breeding, as well as producing and selling seeds for different crops, including genetically modified varieties. They focus on developing high-yield, disease-resistant, and climate-adaptive seed varieties.

Farming cooperatives: Agricultural cooperatives are farmer-owned organizations that provide shared resources, services, and market access to their members. They often handle the storage, processing, and distribution of agricultural products.

Agricultural finance institutions: These institutions offer financial services, such as loans, insurance, and investment opportunities specifically tailored to the agricultural sector. They support farmers and agribusinesses in managing financial risks and accessing capital.

Equipment manufacturers: Companies manufacturing agricultural machinery, equipment, and implements fall under the agribusiness category. They produce tractors, harvesters, irrigation systems, and other technologies used in modern farming practices.

Agri-food processors: These companies are involved in processing agricultural products into value-added food and beverage products. They may specialize in milling, canning, freezing, packaging, or other processing methods.

Agri-retailers: Businesses that operate retail stores or online platforms focused on selling agricultural inputs, equipment, and products directly to farmers and consumers.

Agricultural consulting firms: Firms that provide specialized consulting services to farmers and agribusinesses, offering expertise in areas such as crop management, soil health, livestock management, or sustainable agricultural practices.

Livestock and poultry farming: Farms involved in livestock and poultry production, including dairy farms, cattle ranches, and poultry farms.

AgTech startups: Startups developing innovative agricultural technologies, including precision farming, IoT devices, and agri-drones.

Agribusiness publications: Magazines, websites, and media companies focusing on agricultural news and trends.

Agricultural research institutions: Universities, colleges, and research centers conducting agricultural studies and experiments.

Agri-marketing agencies: Agencies specializing in marketing and branding for agricultural products and services.

Agricultural e-learning platforms: Online platforms providing agricultural education, courses, and training programs.

B Industrial, Technical, and Professional Stream

Agricultural machinery and equipment manufacturers: These businesses specialize in designing, manufacturing, and selling machinery and equipment for agricultural purposes. They focus on developing advanced technologies for precision agriculture, automation, and mechanization.

Technology providers: Companies in this category develop and offer innovative technologies for monitoring, sensing, and controlling agricultural operations. This includes companies involved in drone technology, remote sensing, Internet of Things (IoT) devices, and farm management software.

Engineering and consulting firms: These firms provide engineering and consulting services to the agricultural industry. They offer expertise in areas such as agricultural infrastructure design, irrigation systems, automation solutions, and facility planning.

Agtech startups: Startups focused on developing and implementing cutting-edge agricultural technologies, such as robotics, artificial intelligence, and automation fall under this category. They aim to transform traditional farming practices with innovative solutions.

Farm management software companies: Companies that develop software solutions specifically designed for managing farm operations, including crop planning, inventory management, financial tracking, and record-keeping.

Precision agriculture service providers: Companies offering services such as satellite imagery analysis, drone surveys, soil sampling, and precision application of inputs to optimize farm practices and increase productivity.

Agricultural robotics companies: Companies developing robotics and automation technologies for agricultural tasks, such as harvesting, planting, spraying, and crop monitoring.

Technical service providers: Firms offering technical support, maintenance, and repair services for industrial equipment.

Professional services companies: Companies providing legal, accounting, and consulting services to businesses.

Supply chain and logistics companies: Businesses specializing in efficient supply chain management and logistics solutions.

Energy companies: Companies involved in renewable energy solutions for agricultural operations, such as solar and wind energy providers.

Environmental services providers: Companies offering environmental consulting and sustainability solutions for agricultural practices.

Industrial automation firms: Companies focusing on automation solutions for various industries, including agriculture.

Food safety and quality assurance: Businesses providing services related to food safety standards and quality assurance in the agricultural sector.

c *Data Analysis and Programming Stream*

Data analytics companies: These companies specialize in collecting, analyzing, and interpreting agricultural data to provide insights and recommendations to farmers and agribusinesses. They often develop proprietary algorithms, machine learning models, and data visualization tools.

Programming and software development firms: Software development companies that focus on creating applications and tools specific to the agricultural sector fall into this category. They develop farm management software, data collection and analysis tools, and other digital solutions for precision agriculture.

IT Consultancies: Businesses providing IT consulting services to optimize technology infrastructure.

Research institutions: Agricultural research institutions and universities play a significant role in conducting studies, developing models, and advancing knowledge in the field of digital agriculture. They contribute to data analysis and programming through research projects and collaborations.

Other agri-tech research organizations: Research institutions and organizations focused on advancing technological innovations in agriculture, conducting studies, and developing models for improved data analysis and programming in the agricultural sector.

Agribusiness technology divisions: Larger agribusiness companies often have their own technology divisions dedicated to data analysis and programming. These divisions focus on leveraging data to optimize agricultural practices, develop predictive models, and enhance decision-making processes.

AI and machine learning companies: Companies specializing in artificial intelligence and machine learning applications for various sectors, including agriculture.

Remote sensing and satellite imagery companies: Companies that specialize in collecting and analyzing data from satellites, drones, or remote sensing technologies to provide insights and information on crop health, soil moisture, and other relevant parameters.

Agri-analytics startups: Startups leveraging data analysis, machine learning, and predictive modeling to provide actionable insights to farmers, agribusinesses, or other stakeholders in the agricultural value chain.

Blockchain technology companies: Companies leveraging blockchain technology for supply chain transparency and traceability in agriculture.

Program Success Stories

Alum Rouvay Wilding's experience:

Rouvay Wilding is originally from South Africa with a background in genetics. She joined the Automation and Digital Agriculture Specialist program offered when she discovered the opportunity through job notifications and decided to apply. With her technical training and academic experience, Rouvay realized that her skills could complement the practical and hands-on aspects of digital agriculture. During the program, Rouvay found that the digital agriculture sector offered diverse opportunities and employment prospects, including hands-on positions and project management roles. She identified her transferable skills, and envisioned herself in a senior-level position.

Rouvay found the program "challenging, but rewarding". She said: "You have the career coaches who focus on your resume and your job search, and then you have your technical training and assignments, and then you have a business proposal, and the network events. That was challenging, but I was convinced I would reap the benefits."

"The program is about digital technology, and I was thankful for the insight it gave me into the digital sector. But what I liked about the program more was the upskilling, and how important that was" she added.

What Rouvay considered to be the "most beneficial" aspect of the program was the opportunity for networking. "It's not just the participants", but "the Palette Skills team as well", including "the course instructors and the industry speakers". "All of that has added significant value for me, because it has increased my professional network," she confirmed.

"The program is about digital technology, and I was thankful for the insight it gave me into the digital sector. But what I liked about the program more was the upskilling, and how important that was"

Rouvay found that the program not only provided digital technology insights, but also focused on upskilling and enhancing her resume and job search.

As a result of her participation in the program, Rouvay recently secured a position as a research manager at the University of Saskatchewan. She plans to apply her knowledge of digital phenotyping platforms and other digital agricultural technologies in her new role. Rouvay also pinpointed the benefits for industry and producer partners involved in the program, because they can provide input and have early access to participants for recruitment.

In recommending the program to others, Rouvay emphasized that it is an upskilling program that introduces participants to the industry of digital agriculture She highlighted the importance of networking, attending events, and engaging with instructors and industry experts to establish connections and increase visibility within the industry. Rouvay advised potential participants to have a positive mindset, commit time to the program, and actively participate to reap the benefits and grow their careers.

Read more about Rouvay Wilding's testimonial or watch the highlight video.

Global Ag Risk Solutions,
Employer Partner

Global Ag Risk Solutions, an innovative player in the agricultural risk insurance field, recognized the need for skilled individuals who could effectively merge data and technology in farming. They faced the challenge of finding talent quickly to drive product development and innovation. Partnering with Palette Skills and their Automation and Digital Agriculture Specialist program proved to be a valuable solution.
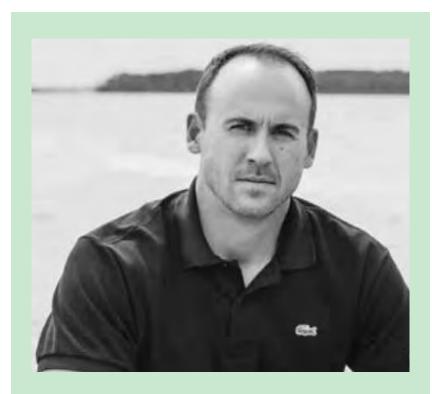
Damon Johnson, director of strategic projects at Global Ag Risk Solutions, expressed the company's initial struggle in attracting talent and the opportunity that arose with Palette Skills. He told us that: "The company welcomed the chance to become an employer partner with Palette Skills and the Automation and Digital Agriculture program." The program provided a list of well-prepared candidates in a record time, allowing them to source talent efficiently.

Johnson highlighted the success of hiring software developers and data scientists from the program. He recounts that "Hiring those two gentlemen was one of the best decisions I've ever made. Palette Skills prepared these two specifically for what the market required in that innovative space, and made that transition incredibly simple." He emphasized the benefits of the program, including its discipline, personalized nature, and the candidates' knowledge of agriculture, automation, remote sensing, and science.

Expressing his satisfaction with the results, Johnson mentioned, "My three most recent hires have come out of the Automation and Digital Agriculture program, and I couldn't recommend it highly enough."

Global Ag Risk Solutions found success by partnering with Palette Skills' Automation and Digital Agriculture Specialist program. They were able to quickly find skilled talent and successfully integrate them into their team, leading to innovative product development and a positive hiring experience.

Want to know more about Global Ag Risk Solutions' experience with Palette Skills? Read the testimonial of Damon Johnson or watch the highlight video.

"My three most recent hires have come out of the Automation and Digital Agriculture program, and I couldn't recommend it highly enough."

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Apply to the program today!
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