



# COURSE SCHEDULE

## SEPT 2024 - JUN 2025

**REGISTRATION OPEN**

**F = FALL (SEPT 16 - DEC 20)    W = WINTER (JAN 3 - APR 4)    S = SPRING (APR 7 - JUN 20)**

### AGE 7 - 14

**F W S**

#### **ROBOTICS / AI**

No experience necessary.  
Coding, sensors, problem solving.  
Using Scratch & Arduino C/C++.

**TUE & THU**

6:00 - 7:00 pm

**F W S**

#### **CODING / PROGRAMMING / AI**

No experience necessary. Building games. Scratch, Python, Arduino C.

**TUE & THU**

7:00 - 8:00 pm

**F W S**

#### **ANIMATION / VIDEOGRAPHY**

Use Lego, clay, paper to create your own animated video, start to finish. Youtube content creation.

**FRI & SUN**

7:00 - 8:00 pm

**F W S**

#### **SPACE / ELECTRONICS / ROCKETS**

Astronomy, spacecraft, physics, electronics, energy, rocketry, UAVs.

**FRI & SUN**

6:00 - 7:00 pm

### AGE 12 - 18

**F W S**

#### **8AAT COMPETITIVE TECH CLUB**

Build robots, vehicles, drones, etc. Up for a challenge? Competitions? Lab open 3 days per week.

**TUE, THU, SUN**

8:00 - 9:30 pm

**S**

#### **START YOUR OWN BUSINESS**

Considering a summer business? Start with our course!

**TUE**

7:00 - 8:00 pm

**W**

#### **INNOVATION STATION**

A course that combines music, art, science, sports & creative writing. Creative thinkers create the future.

**TUE**

7:00 - 8:00 pm

**F**

#### **LEADERSHIP IN TRAINING**

Build you confidence, team build. Great foundation for your future.

**TUE**

7:00 - 8:00 pm

# Course Descriptions (detailed)

## Robotics / AI

Offered: Fall, Winter, Spring.  
Ages: 7 to 14  
Price: \$150/term

Robotics involves the design, creation, and programming of robots. Children who learn about robotics will develop a deep understanding of mechanics, electronics, and computer programming. Robotics is a rapidly growing field that is already being used in various industries such as manufacturing, healthcare, and agriculture. If children learn robotics, it will be useful for them in the future, a future in which robots and automation will replace a large section of the workforce.

Our course involves programming a small wheeled robot. The students familiarize themselves with the different sensors and motor control strategies, cover basic physics and electronics, diagrams, planning, problem solving. We use Scratch visual block programming language and slowly transition towards Arduino C/C++. As the terms progress, we enter into more complicated problems where the students require using their coding skills to make the robot perform as required. Students will be introduced to AI at various points and as a tool for problem solving involving the robot.

Bonus: Students in this course automatically join the 8AAT Competitive Tech Club for North Grenville / Kemptville Region (8AAT-NGCTC) for 1 year membership (valid until Aug 31, 2025). 8AAT-NGCTC will be competing in a variety of competitions to build a strong local tech team for national robotics, drone, UAV and other competitions.

The course is offered twice weekly: your child can attend one class per week or both. We suggest both classes for better retention of material and class involvement.

## **Coding / Programming / AI**

Offered: Fall, Winter, Spring.  
Ages: 7 to 14  
Price: \$150/term

Coding and Programming According to the article, coding and programming is a fundamental skill that is becoming increasingly important in today's world. Children can learn to code through games, toys, and computer programs designed for kids. As they become more familiar with programming languages, they can move on to more advanced languages such as Python, Java, and C/C++. These skills are essential for the future as technology continues to evolve. These programming languages form the backbone for most embedded software (e.g. appliances, vehicles, smart-home technology, etc) and designer software upon which our digital society is now based. Prepare your children for the future.

8AAT will provide Scratch as a coding starting point. We will transition towards Python and Arduino C/C++. We will also cover an older programming language: BASIC, offering a different structure and strategy to programming, but simple to learn as an education tool to help children better structure their coding to perform the way they intend.

The course is offered twice weekly: your child can attend one class per week or both. We suggest both classes for better retention of material and class involvement.

## Animation / Videography

Offered: Fall, Winter, Spring.  
Ages: 7 to 14  
Price: \$150/term

Animation, particularly through mediums like Lego, clay, video, or paper, offers a wide range of benefits for children aged 7 to 14. Here are some key advantages:

- 1. Enhanced Creativity:** Engaging in animation projects allows children to unleash their creativity by coming up with unique storylines, characters, and settings. Whether using Lego figures, clay models, or paper cut-outs, children can explore their imagination and bring their ideas to life through animation. They learn how to convey emotions, actions, and dialogues using animated characters and scenes, enhancing their ability to communicate ideas effectively through visual storytelling.
- 2. Improved Problem-Solving Skills:** Creating animations involves overcoming various challenges such as planning the sequence of movements, adjusting frame rates, and troubleshooting technical issues. This process encourages children to think critically and develop problem-solving skills as they work through each step of the animation project.
- 3. Enhanced Technical Proficiency:** Working with stop motion animation tools and software introduces children to basic technological concepts and digital skills. They learn how to operate devices like smartphones or tablets for capturing images, use animation apps effectively, and understand the basics of editing and sequencing frames.
- 4. Encouragement of Collaboration:** Animation projects often require teamwork when working on group projects. Children learn how to communicate effectively with peers, delegate tasks, share ideas, and collaborate to bring their collective vision to fruition. This fosters social skills and promotes a sense of shared accomplishment.
- 5. Boost in Confidence:** Completing an animation project from start to finish can significantly boost a child's confidence and self-esteem. Seeing their creations come to life through animation can be incredibly rewarding and empowering for young animators, encouraging them to take on more complex challenges in the future.
- 6. Development of Patience and Persistence:** Animation is a meticulous process that demands patience and persistence. Children learn the value of perseverance as they work through repetitive tasks like moving objects incrementally and capturing multiple frames. This cultivates resilience and determination in tackling complex projects.
- 7. Integration of STEAM Concepts:** Animation seamlessly integrates elements of science, technology, engineering, arts, and math (STEAM). Children engage in hands-on learning experiences that involve scientific concepts (e.g., motion), technological tools (e.g., apps), engineering principles (e.g., problem-solving), artistic expression (e.g., storytelling), and mathematical considerations (e.g., sequencing frames).

## Space / Electronics / Rocketry

Offered: Fall, Winter, Spring.  
Ages: 7 to 14  
Price: \$150/term

The best course (in our opinion). These activities not only foster curiosity and creativity but also provide valuable educational opportunities that can have a lasting impact on a child's development. Space industry employment opportunities are vast, millions of jobs will be created as the space industry in the decades ahead. Anyone can participate in the space industry – tradespeople, engineers, scientists, artists, musicians, labourers, logistics staff, etc.

Our course:

1. Stimulates Interest in STEM Fields: Introducing children to electronics, rocketry, and space exploration at a young age can spark their interest in science, technology, engineering, and mathematics (STEM) fields. This early exposure can lay the foundation for future academic pursuits and potential career paths in these areas.
2. Encourages Problem-Solving Skills: Working on electronics projects, building rockets, and studying space concepts require critical thinking and problem-solving skills. Children learn how to troubleshoot issues, experiment with different solutions, and overcome challenges, which are essential skills both in academics and real-world scenarios.
3. Fosters Creativity and Innovation: Engaging in hands-on activities like building electronic circuits or designing rockets encourages creativity and innovation. Children have the opportunity to explore their ideas, experiment with new concepts, and come up with unique solutions to problems they encounter during their projects.
4. Enhances Technical Skills: Learning about electronics introduces children to basic circuitry principles, soldering techniques, programming concepts, and more. Building rockets involves understanding aerodynamics, propulsion systems, materials science, and other technical aspects. Exploring space concepts deepens their understanding of astronomy, physics, and planetary science.
5. Promotes Teamwork and Collaboration: Many electronics projects, rocketry endeavors, and space-related activities involve teamwork and collaboration. Children learn how to work effectively in groups, communicate their ideas clearly, delegate tasks, and achieve common goals together.
6. Cultivates a Sense of Curiosity and Exploration: The realms of electronics, rocketry, and space are filled with mysteries waiting to be uncovered. By engaging in these activities, children develop a sense of curiosity about the world around them and beyond. They learn to ask questions, seek answers through research or experimentation, and continuously expand their knowledge.
7. Inspires Long-Term Interest in Science and Technology: Exposure to electronics projects like building simple circuits or creating robotic devices can inspire a lifelong interest in technology. Rocketry experiments may ignite a passion for aerospace engineering or astrophysics. Learning about space could lead to a fascination with astronomy or planetary exploration.

## 8AAT-NGCTC, Competitive Tech Club

Offered: Fall, Winter, Spring.  
Ages: 7 to 14  
Price: \$150/term

What are the benefits of Joining a Competitive Robotics, UAV, Autonomous Vehicle Club for Ages 12 to 18? The key to the 3 terms of courses and training is to build the core for a strong competitive tech club in North Glengarry / Kemptville.

These clubs provide a unique and engaging platform for young enthusiasts to explore their interests in robotics, engineering, programming, and technology. Here are some of the key benefits:

- 1. Skill Development:** Participating in a competitive robotics club can help teenagers develop a wide range of skills, including technical skills such as coding, circuit design, mechanical engineering, and problem-solving. These skills are not only valuable in the field of robotics but also have applications in various other STEM-related disciplines. It provides youth with a diverse skill-set applicable to employment in the AI / automation driven economy of their lifetime.
- 2. Teamwork and Collaboration:** Working on robotics projects within a club setting fosters teamwork and collaboration among members. Students learn how to communicate effectively, delegate tasks, and work together towards a common goal. These interpersonal skills are essential for success in both academic and professional settings.
- 3. Creativity and Innovation:** Robotics clubs encourage creativity and innovation by challenging students to think outside the box and come up with unique solutions to complex problems. This creative thinking is crucial for developing cutting-edge technologies and pushing the boundaries of what is possible in the field of robotics.
- 4. Competition Experience:** Competing in robotics competitions provides teenagers with valuable experience in a competitive environment. It teaches them how to perform under pressure, think strategically, and continuously improve their designs based on feedback from judges and competitors.
- 5. Networking Opportunities:** Being part of a robotics club exposes teenagers to a network of like-minded individuals, mentors, industry professionals, and potential future collaborators. Building these connections early on can open doors to internships, job opportunities, and further education in STEM fields.
- 6. Personal Growth:** In addition to technical skills, joining a robotics club can contribute to personal growth by boosting self-confidence, resilience, time management skills, and the ability to overcome challenges. These qualities are invaluable for navigating both academic pursuits and future career paths.
- 7. Fundraising skills:** Student will learn various strategies to generate a pool of funds necessary to apply for regional and national tech-based hackathons and competitions.

The lab is available 3 times per week. Students can drop in when they have time work on projects. Tutorials and small projects to build skills will be provided at class sessions. Larger projects involving preparing for competitions will be the focus of the Spring 2025 term, after building 2 consecutive terms of skills, resources, experience and confidence.

# Start Your Own Business / Entrepreneurship Course

Offered: Spring  
Ages: 12 to 18  
Price: \$150/term

1. **Financial Literacy:** One of the primary benefits of taking an entrepreneurship financial management course at a young age is the development of financial literacy. Understanding concepts such as budgeting, investing, and managing money early on can set a strong foundation for future financial decision-making.

2. **Entrepreneurial Skills Development:** The course can help young individuals cultivate essential entrepreneurial skills such as critical thinking, problem-solving, creativity, and risk management. These skills are valuable not only in business but also in various aspects of life.

3. **Early Exposure to Business Concepts:** By learning about entrepreneurship and financial management during adolescence, individuals can gain early exposure to fundamental business concepts. This exposure can spark interest in entrepreneurship as a potential career path and provide insights into the workings of the business world.

4. **Building Confidence and Independence:** Engaging in an entrepreneurship financial management course can boost confidence and independence in young learners. As they acquire knowledge and skills related to managing finances and running a business, they become more self-assured in their abilities to navigate real-world challenges.

5. **Networking Opportunities:** Participating in such a course can also provide networking opportunities for young individuals. Connecting with like-minded peers, mentors, or industry professionals can open doors to potential collaborations, internships, or even future business partnerships.

6. **Real-World Application:** An entrepreneurship financial management course offers practical knowledge that can be applied in real-world scenarios. From creating a business plan to managing cash flow, students get hands-on experience that prepares them for entrepreneurial endeavors later in life.

7. **Fostering Innovation and Creativity:** Encouraging young minds to explore entrepreneurship fosters innovation and creativity. Through brainstorming ideas, developing business models, and executing plans, students learn how to think outside the box and come up with innovative solutions to problems.

8. **Empowering Future Leaders:** Participants learn how to take initiative, lead teams, and drive positive change through their entrepreneurial endeavors.

9. **Adaptability and Resilience:** Facing challenges and setbacks while learning about entrepreneurship teaches young individuals valuable lessons in adaptability and resilience. They learn how to pivot strategies, overcome obstacles, and persevere in the face of adversity - essential traits for success in any field.

We provide a certification of completion upon successful completion of all course milestones.

# Innovation Station / Creative Thinking Course

Offered: Winter  
Ages: 12 to 18  
Price: \$150/term

In today's rapidly changing world, fostering innovation and creative thinking skills from a young age is becoming increasingly important. For individuals aged 12 to 18, taking an innovation creative thinking course can offer a wide range of benefits that can positively impact their personal, academic, and professional development.

- 1. Stimulates Critical Thinking Skills:** One of the primary benefits of enrolling in an innovation creative thinking course at this age is the stimulation of critical thinking skills. These courses often challenge students to think outside the box, analyze problems from different perspectives, and come up with innovative solutions. Developing critical thinking skills at a young age can significantly enhance academic performance and prepare individuals for future challenges.
- 2. Encourages Problem-Solving Abilities:** Participating in an innovation creative thinking course can help individuals aged 12 to 18 develop strong problem-solving abilities. By engaging in activities that require them to identify issues, brainstorm ideas, and implement solutions, students can enhance their analytical skills and become more adept at addressing complex problems effectively.
- 3. Fosters Creativity and Innovation:** Creativity is a valuable skill that can set individuals apart in various aspects of life. Through an innovation creative thinking course, young learners have the opportunity to explore their creativity, experiment with new ideas, and unleash their innovative potential. This fosters a mindset that values originality and encourages individuals to approach challenges with fresh perspectives.
- 4. Enhances Communication and Collaboration Skills:** Innovation often thrives in collaborative environments where diverse ideas are shared and refined through effective communication. By participating in group projects and interactive exercises within the course, individuals aged 12 to 18 can improve their communication skills, learn how to work effectively in teams, and appreciate the value of collaboration in driving innovation forward.
- 5. Prepares for Future Careers:** In today's competitive job market, employers increasingly seek candidates who possess strong creative thinking and problem-solving skills. By undergoing training in innovation creative thinking during adolescence, individuals are better equipped to navigate future career opportunities that require adaptability, creativity, and a proactive approach to addressing challenges.
- 6. Boosts Confidence and Self-Esteem:** Engaging in activities that promote innovation and creative thinking can boost confidence levels among young learners. As they successfully tackle challenging tasks, generate unique ideas, and see the impact of their creativity firsthand, individuals aged 12 to 18 gain confidence in their abilities and develop a positive self-image that can benefit them both academically and personally.
- 7. Cultivates Lifelong Learning Habits:** Participating in an innovation creative thinking course at a young age instills a passion for learning and exploration that can extend into adulthood.

We provide a certification of completion upon successful completion of all course milestones.



# Leadership in Training Course

Offered: Fall  
Ages: 12 to 18  
Price: \$150/term

What are the benefits of a Leadership in Training (LIT) course?

- 1. Development of Leadership Skills:** Participating in a leadership training course at ages 12 to 18 provides young individuals with the opportunity to develop essential leadership skills. These skills include communication, decision-making, problem-solving, teamwork, and adaptability. By engaging in leadership activities and responsibilities, teenagers can hone these skills in a practical setting, preparing them for future roles in school, work, and their communities.
- 2. Building Confidence and Self-Esteem:** Taking on leadership roles at a young age can significantly boost confidence and self-esteem. Through successfully leading peers, making decisions, and overcoming challenges, teenagers gain a sense of accomplishment and belief in their abilities. This increased confidence can have a positive impact on various aspects of their lives, including academic performance and social interactions.
- 3. Preparation for Future Success:** Participation in leadership training courses during adolescence lays a strong foundation for future success. Learning to lead effectively, communicate with others, and navigate complex situations equips young individuals with valuable skills that are transferable to academic pursuits, careers, and personal relationships. The experiences gained through leadership training can set teenagers on a path towards achieving their goals and aspirations.

We provide a certification of completion upon successful completion of all course milestones.