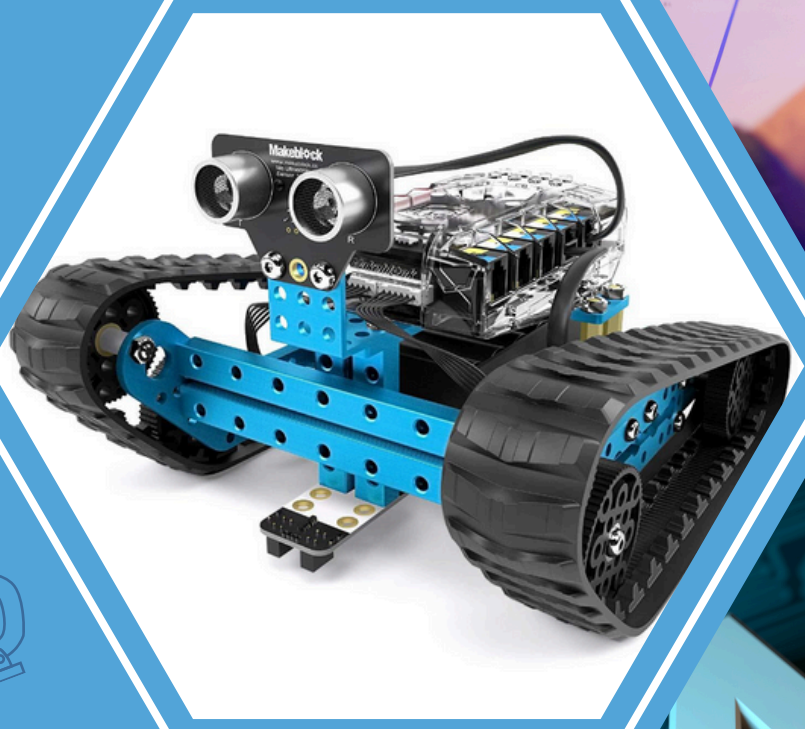
STEM Centre Australia
SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

2025

INFORMATION GUIDE

Fun, Interactive & Educative STEM Course

Reception - Year 9



FACE-TO-FACE STEM COURSES DELIVERED AT DEDICATED TRAINING CENTRES

Are you interested in joining our voyage of leading-edge learning and discovery?

Why STEM is important?

According to the Australian Government Industry Employment Projections Report, over the next five years, employment is predicted to increase in professional, scientific and technical services by 16.8 per cent and in health care by 15.8 per cent. The Australian Bureau of Statistics has estimated that some STEM-related jobs, such as information and communication technologies professionals and engineers, have grown at about 1.5 times the rate of other jobs in recent years.

International research shows that building STEM capacity across the population is critical in helping to support innovation and productivity regardless of occupation or industry. Consistent with this research, industry surveys show that STEM literacy is increasingly becoming part of the core capabilities that Australian employers need.

A renewed national focus on STEM in school education is critical to ensuring that all young Australians are equipped with the necessary STEM skills and knowledge that they will need to succeed.

How we embody STEM concepts in our courses

STEM Centre Australia develops courses and delivers engaging learning experiences in STEM-related fields targeted towards school-aged and tertiary students, as well as educators. Aligned with the Australian Curriculum, STEM Centre Australia offers several new, innovative and exciting courses to boost our students' knowledge, interest and awareness in highly sought-after STEM fields.

At STEM Centre Australia, we know that STEM is about implementing learning strategies that engage learners in authentic and collaborative problem solving, whereby solutions are created by drawing upon deep disciplinary knowledge of science, technologies and mathematics. Additionally, STEM learning encourages both critical and creative thinking. These skills are essential in all 21st century occupations. Our approach to STEM education optimises the development of STEM-capable individuals; people who thrive personally and professionally, make informed decisions in their daily life and are empowered to follow STEM careers and lead innovation at any age.

The STEM Centre Australia team consists of experts from leading Australian industries and institutions within the disciplines of science, technology, engineering, mathematics and education. In alignment with the National STEM School Education Strategy, we have developed a hands-on approach to scientific, mathematical and technological literacy, utilising learning modules, appropriate self- and peer-assessments and practicals.

STREAM BASED LEARNING MODEL

Introducing a stream-based learning and delivery model

At STEM Centre Australia, we are excited to introduce our new stream-based delivery system in 2025, designed to provide students and parents with a clearer, more cohesive learning journey. Our courses are now categorized into three distinct streams: RoboVerse, CodeCraft, and AI Nexus. Each stream focuses on specific areas of STEM education, catering to different interests and age groups, while ensuring students receive age-appropriate and progressive learning experiences.

This new system simplifies course selection, allowing parents to easily identify the right path for their child's interests and skills. It also ensures students can advance steadily, from foundational concepts to advanced applications, within a unified and engaging framework. By aligning courses to streams, we foster deeper engagement and skill development, equipping students with critical 21st-century skills that are essential for success in their future academic and professional journeys.

RoboVerse

"Building Future Innovators, One Robot at a Time!"

Exploring Robotics and Coding

RoboVerse is the ultimate destination for young learners fascinated by robotics and coding. Designed for students in Foundation to Year 5, this stream introduces fundamental robotics concepts through hands-on activities using state-of-the-art robotic kits. Students learn coding through interactive projects, fostering computational thinking, creativity, and teamwork.

Through RoboVerse, students build problem-solving skills and develop a strong foundation in STEM. This stream encourages curiosity and innovation, helping students explore the limitless potential of robotics while nurturing their love for learning

ROBEVERSE COURSES
Foundation - Year 2

Introduction to Robotics and Coding (Early Learners)

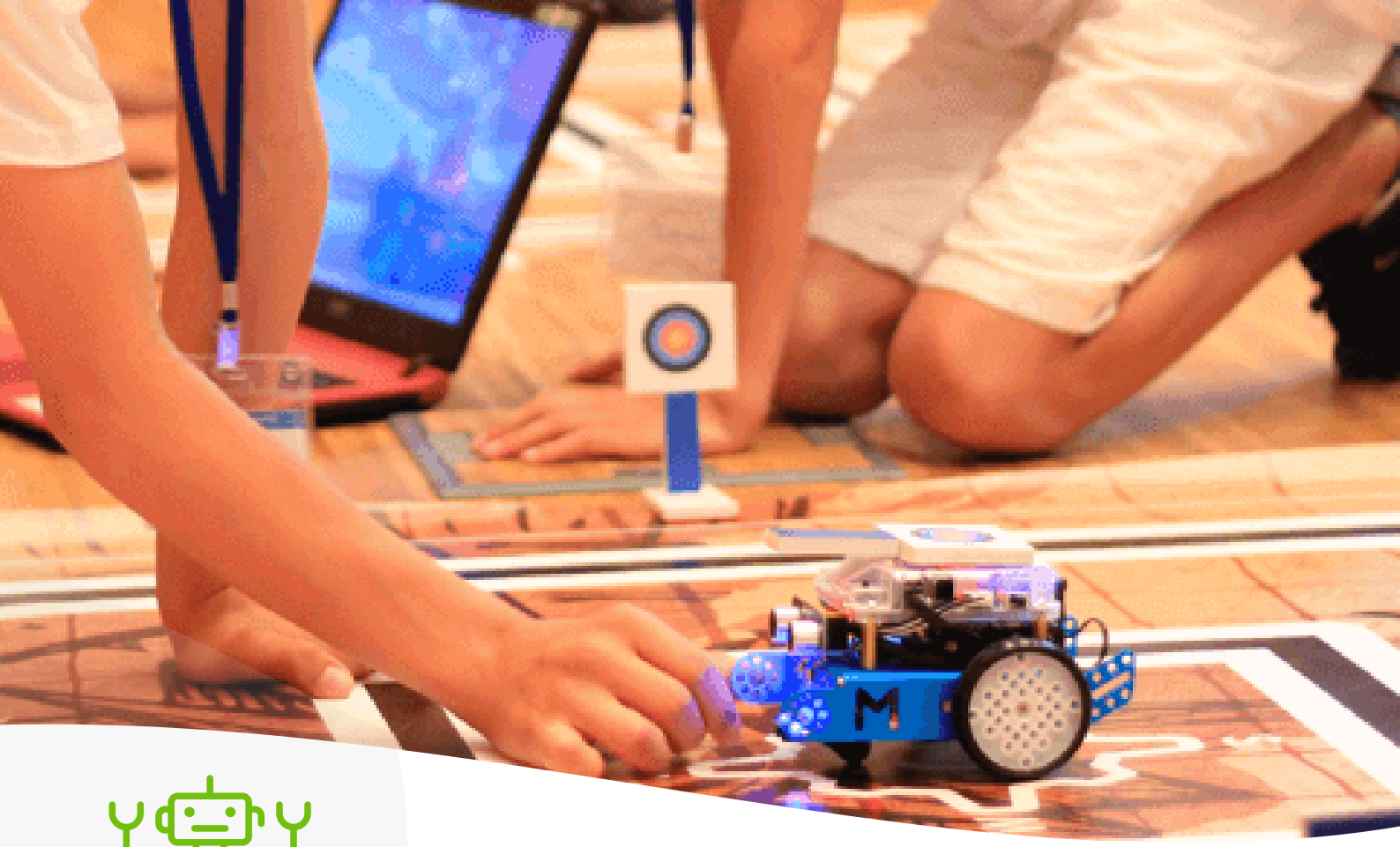
Course Description

Learning to code teaches you how to think; this is even true for early-learning kids and pre-schoolers!

Designed by experts at STEM Centre Australia, with a multi-disciplinary experience and experience ranging from leading Australian industries within the disciplines of engineering, mathematics, medical sciences and education. Various phases in the Robotics & Coding course addresses the Australian Curriculum on Digital Technologies, aligned with the National STEM School Education Strategy, to develop a hands-on approach to mathematical and technological literacy.

We aspire to motivate and empower kids as young as 5 to code and problem-solve by delivering an imaginative, innovative and engaging program. The journey to coding starts with basic coding, sequencing and mapping concepts. Then, using our friendly and easy-to-use educational STEM robot kits, students will learn to code artistic, musical and mathematical programs, which will assist in developing cognitive abilities, imagination & coding skills through hands-on play.

This series of courses consist of 3 phases ranging from Beginner, Intermediate and Advanced to cater for students with various levels of understanding in the field. All phases are developed to be engaging and interactive, oozing fun-filled learning activities designed to allow kids' inner genius to flourish. Consisting of 6 structured sessions, early learners will develop robotics and coding skills through cognitive learning techniques in individual and team settings. Initially, kids will understand robots and coding in their most simplistic forms, followed by the application of robotics and coding concepts in arts, maths and music.



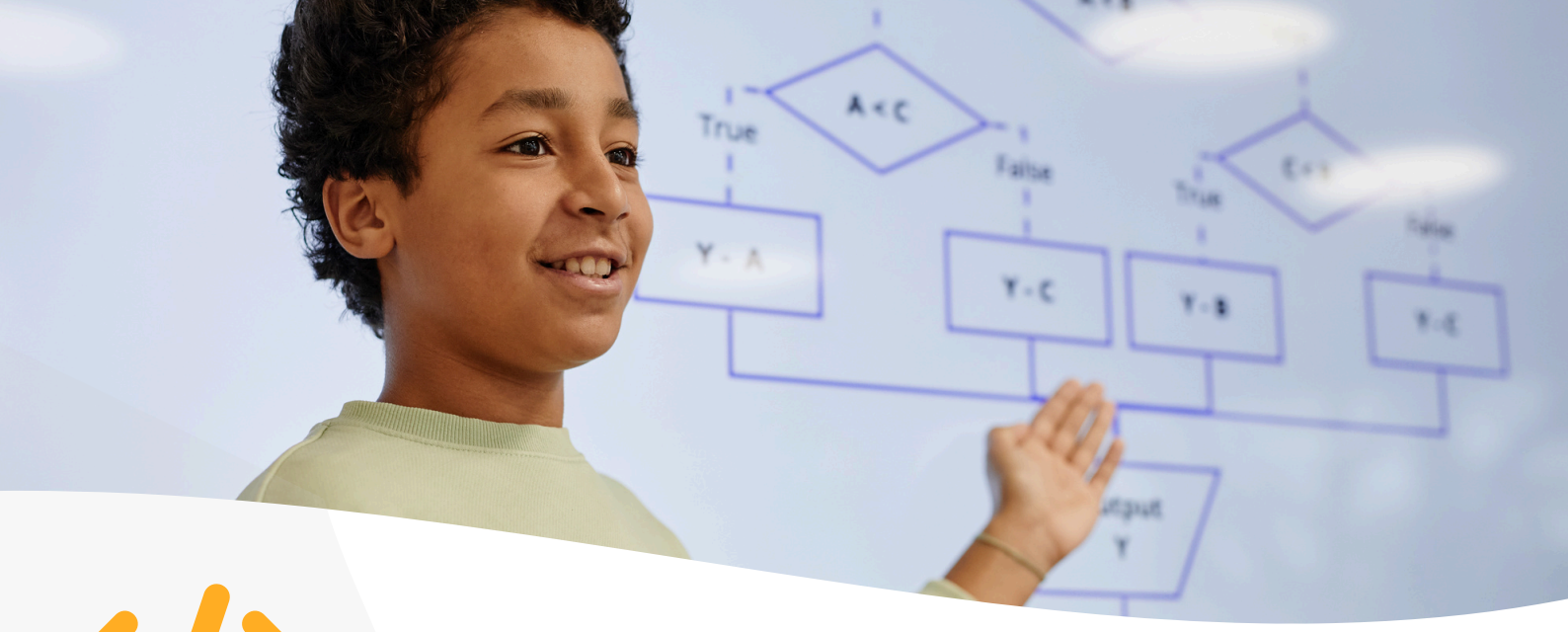
ROBOVERSE COURSES
Year 3 - Year 6

Introduction to Robotics and Coding (Phase 1 - 3)

Course Description

All Robotics & Coding courses are designed by experts in STEM Centre Australia, with a multi-disciplinary experience and experience ranging from leading Australian industries within the disciplines of engineering, mathematics, medical sciences and education. Various phases in the Robotics & Coding course addresses the Australian Curriculum on Digital Technologies, aligned with the National STEM School Education Strategy, to develop a hands-on approach to mathematical and technological literacy.

More specifically, concepts aligned with the future industry technologies and platforms have been implemented in the course content, ensuring absolute relevance and applicability to today's technologically dominated world. Programming languages such as Scratch 3.0, Arduno and Python are used with the latest technology-based STEM robotics hardware kits and programing software.



CodeCraft

"Where Ideas Turn into Code and Creativity Knows No Bounds!"

Mastering Programming and Coding

CodeCraft empowers students in Years 3 to 9 to become proficient in programming and coding. This stream offers a wide range of courses, from introductory block-based coding to text-based programming languages like Python. Students engage in real-world projects, including game development and app creation, allowing them to see the tangible results of their efforts.

The stream fosters logical reasoning, algorithmic thinking, and creativity. By progressing through CodeCraft, students not only build coding expertise but also gain critical problem-solving skills that will serve them in various academic and career paths.

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CODECRAFT COURSES
Year 3 - Year 5

Introduction to Block-Based Coding
Learning Through Game Development

Course Description

At STEM Centre Australia, we are excited to introduce our innovative block-based coding course designed specifically for young learners. This course utilizes an engaging and interactive methodology where children learn coding concepts by developing their own games in a block-based coding environment. Guided by experienced instructors, students embark on a creative journey to design, build, and refine games while mastering essential coding skills. The embedded block coding interface provides a visual and intuitive platform, making coding accessible and enjoyable for children, even those with no prior experience.

Through this course, children will gain a strong foundation in core programming concepts such as loops, conditionals, events, and variables. They will develop problem-solving and critical-thinking skills as they tackle challenges and improve their game designs. Beyond technical skills, students will learn to think like programmers, applying logic and creativity to bring their ideas to life. This hands-on approach ensures that learning is not only educational but also incredibly fun, fostering a sense of accomplishment as students see their creations come alive.

The benefits of this course extend beyond the realm of coding. By enhancing computational thinking, creativity, and perseverance, students gain skills that are transferable to other subjects like math, science, and even language arts. Research shows that learning to code improves logical reasoning and cognitive abilities, which can translate to better academic performance across disciplines. Additionally, the collaborative environment of the course encourages teamwork and communication, preparing students for success in both school and future career paths.

CODECRAFT COURSES
Year 4 - Year 9

Introduction to Programming – Python (Phase 1 – 3)

Course Description

Introduction to Programming – Python - Beginner" is a comprehensive course aimed at developing deep-rooted understanding of the fundamentals of programming and coding for beginners and those looking to enhance their programming skills.

Moving on, the "Introduction to Programming – **Python** – Intermediate" is an ideal course for those students who had already gained an initial exposure to Python programming and looking to challenge themselves further.

Finally, "Introduction to Programming – Python – Advanced" is an ideal course for those students who had already gained an initial exposure to Python programming, functions, object-oriented programming (OOP) and looking to learn by real life hardware implementation and application.

AI Nexus

"Guiding Young Minds to Build an Ethical AI Future!"

Unleashing the Power of Artificial Intelligence

AI Nexus is our advanced stream, designed for students in Years 3 to 9 who are eager to explore the transformative field of artificial intelligence. Courses in this stream introduce students to foundational AI concepts, including machine learning, data analysis, and ethical considerations, through engaging and interactive lessons.

By participating in AI Nexus, students gain insights into cutting-edge technologies and their real-world applications. This stream equips students with the skills and knowledge to thrive in a rapidly evolving world, fostering innovation, critical thinking, and a deep understanding of AI's potential to shape the future.

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AI NEXUS COURSES
Year 4 - Year 6

Introduction to Artificial Intelligence (Phase 1 & 2)

Course Description

The first phase of our Introduction to AI course is designed for young learners eager to understand and harness the power of artificial intelligence in a simple and engaging way. Using a block-based coding environment, students integrate open-source AI tools like Teachable Machines and OpenAI to create solutions to real-world problems. Through interactive projects such as gesture detection, object recognition, and sign language interpretation, students gain hands-on experience with cutting-edge technology. This phase focuses on making AI concepts accessible, fostering creativity, and encouraging students to think critically about the ethical implications of their work.

In Phase 2, students take their AI journey to the next level by transitioning from block-based coding to Python programming. This phase equips learners with the skills to integrate open-source AI libraries and tools to build more advanced solutions to contemporary challenges. Projects in this phase include designing AI systems for complex tasks, developing augmented reality (AR) applications, and exploring the intersection of AI and AR to create innovative, interactive experiences.

Students deepen their understanding of AI principles while learning to code more sophisticated algorithms. This phase emphasizes critical thinking, problem-solving, and responsible AI development, preparing students to engage with emerging technologies ethically and effectively.

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