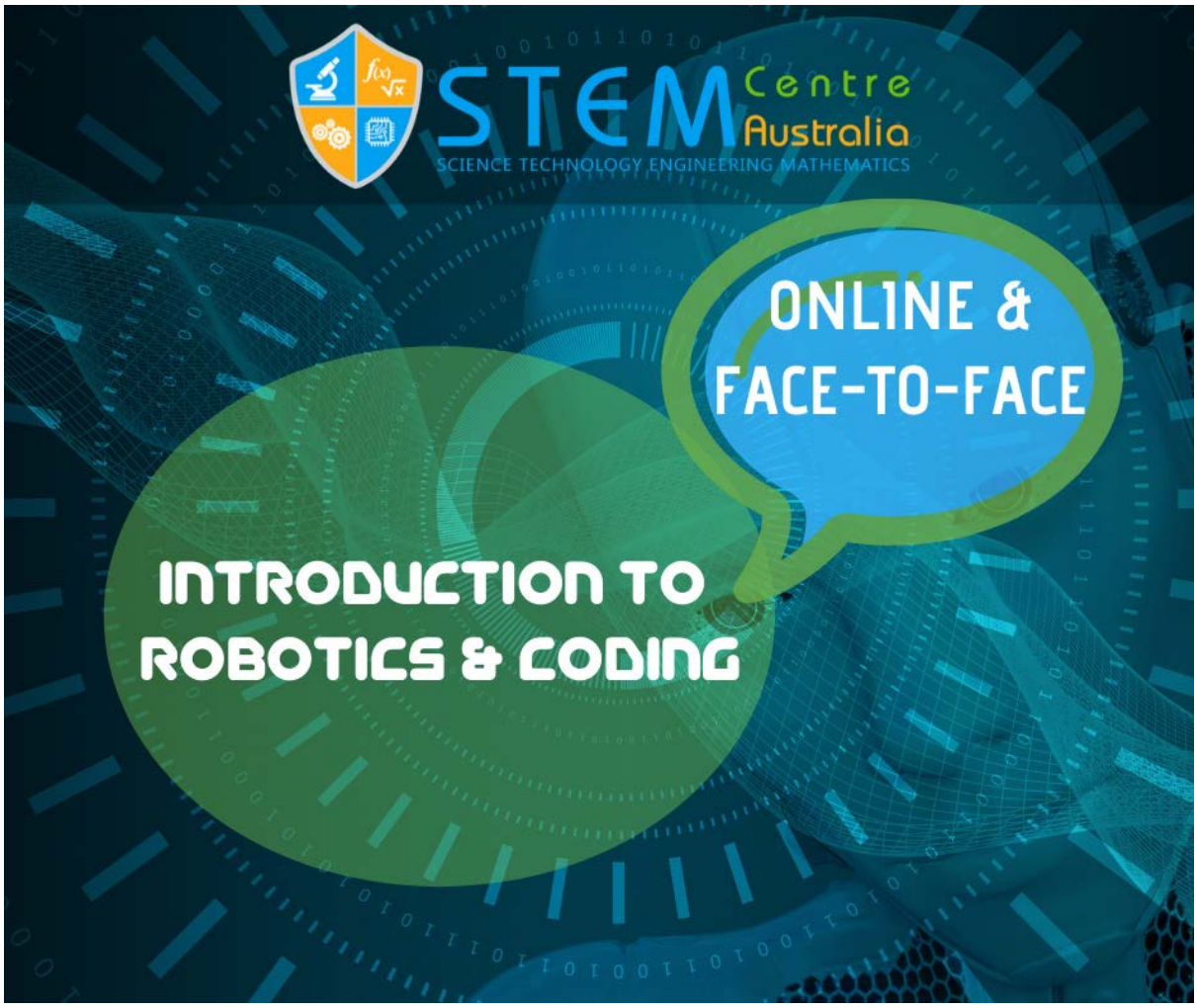

Dear parents and students,

STEM Centre Australia is excited to offer our **'Introduction to Robotics & Coding'** course!

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 (2015), over the next five years, employment is predicted to increase in professional, scientific and technical services by 14 per cent and in health care by almost 20 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.

STEM Centre Australia
ABN: 18 634 498 810
www.TutorsSA.com.au
Ph: +61 08 8166 7579 / 0412 258 554
info@TutorsSA.com.au

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.

Introduction to Robotics & Coding

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 programming software.

Additionally, learning modules and assessments throughout the course and end of course completions promote the development of 21st century transferable skills of problem solving, critical analysis, creative thinking and teamwork; necessary skills for lifelong learning.

We are thrilled to open your child's mind to the world of Robotics & Coding, first with fundamental concepts and then extend preliminary concepts into advanced concepts associated with real life applications. Students will be exposed to a range of engaging and hands on interactive activities, to address and extend Australian Curriculum content, promoted by self-regulated and active learning strategies.

All lessons are conducted by qualified and experienced professionals within relevant Australian industries and institutions, thus providing a real-life approach to STEM-related fields.

Course Structure

Students will be placed in an appropriate age- and skill-matched group ranging from Phase 1 – Phase 4, covering Beginner, Intermediate, Advanced and Pro levels, ensuring the most suitable alignment in achieving expected learning outcomes for students.

STEM Centre Australia
ABN: 18 634 498 810
www.TutorsSA.com.au
Ph: +61 08 8166 7579 / 0412 258 554
info@TutorsSA.com.au

1. Foster and nurture students' curiosity towards STEM, ensuring the development of deeper engagement and learning
2. Understand the essential concepts of computing, including algorithms, sequences, loops, conditionals and variables
3. Develop fundamental mathematical and logical reasoning algorithms and extend the knowledge as progressed though different phases of the course
4. Implement fundamental mathematical and logical reasoning-based algorithms
5. Recognise the latest technology-based concepts at application level, including Artificial Intelligence (AI) and Internet of Things (IoT)
6. Learn and gain practical experience in assembling robot-associated electronic hardware
7. Synthesise and implement new learning; undertake critical and creative thinking; identify and solve problems
8. Work effectively individually and as a team in project design and evaluation tasks

Introduction to Robotics & Coding - Phase 1 (Beginner)

Ideal for students even with no background in electronics or coding. Phase 1 (Beginner) is the first of four phases in the Introduction to Robotics & Coding series. This course is designed to start at the very beginning and systematically teach students key concepts in robotics, coding and then how to combine those skills to develop functional code while empowering students by highlighting the benefits of learning robotics and coding for broader STEM fields. Students will gain theoretical knowledge and practical hands on experience in coding based on Scratch 3.0 block based visual programming software. Students will learn Scratch 3.0 based functional coding blocks development, maths games and animations development via gamified learning, while boosting sequential and creative thinking skills.

Introduction to Robotics & Coding - Phase 2 (Intermediate)

Continuing from Phase 1 (Beginner) version of the course, by undertaking the Phase 2 (Intermediate) of the course, students will further enhance their knowledge and experience in programming concepts and more importantly will start interacting with educational STEM robots, named mBot. From assembling robots to developing code to make use of the various sensors and actuators of the mBot, and then further explore the interaction between multiple robots are some of the exciting sections are some of the key skills students will learn through this phase. Students will also get to explore the concepts and technology behind autonomous vehicles through obstacle avoidance, line follower, and other sensor control functions.

Introduction to Robotics & Coding - Phase 3 (Advanced)

Phase 3 (Advanced) of the robotics & coding course is a step up from Phase 2 in multitude of ways. Students will learn advanced programming concepts based on Scratch 3.0, ad will also get introduced to other highly relevant programming languages such as Python and Arduno. Students will also gain knowledge in sensor-controlled software development and learn exciting advanced programming concepts associated with programming multiple sensors and actuators. These will directly feed in Phase 4 (Pro) version of our course to excel in robotics and coding.

Introduction to Robotics & Coding - Phase 4 (Pro)

Become a Pro in robotics and coding by completing Phase 4 (Pro) of our robotics & coding course. With a high level of emphasis on advanced robotics, students will directly work on a highly capable 3-in-1 educational STEM robot mBot Ranger, which is an advanced version of mBot. mBot Ranger is based on highly configurable Arduino Mega 2560 development board which is based on a powerful microcontroller. Students will develop code for several exciting applications, and implement on the mBot Ranger, as such; self-balancing robot, solar powered ranger, Interstellar voyage, light controlled autonomous robot are some of the key application covered in this phase of the course.

Course information

FACE-TO-FACE LESSONS

Phase 1 (Beginner) – School years 3-6

- 6 weekly sessions x 1.5 hr per session
- Starting in School Term 4:
  - Group 1: Starting 31st October 2020, Saturdays 9.30 am – 11.00 am
- Full course fee: $249
- **Registration closes by 23rd October 2020**

Phase 2 (Intermediate) – School years 6-12

- 6 weekly sessions x 1.5 hr per session
- Starting in School Term 4:
  - Group 1: Starting 31st October 2020, Saturdays 11.00 am – 12.30 pm
- Full course fee: $249
- **Registration closes by 23rd October 2020**

Phase 3 (Advanced) – School years 6-12

- 6 weekly sessions x 1.5 hr per session
- Starting in School Term 4:
  - Group 1: Starting 31st October 2020, Saturdays 1.00 pm – 2.30 pm
- Full course fee: $249
- **Registration closes by 23rd October 2020**

Phase 4 (Pro) – School years 6-12

- 6 weekly sessions x 1.5 hr per session
- Starting in School Term 4:
  - Group 1: Starting 31st October 2020, Saturdays 2.45 pm – 4.15 pm
- Full course fee: $249
- **Registration closes by 23rd October 2020**

Location

STEM Centre Australia Campbelltown Centre
27 Montacute Road
Campbelltown SA 5074

ONLINE LESSONS

Phase 1 (Beginner) – School years 3-6

- 6 weekly sessions x 1.5 hr per session
- Starting in School Term 4:
  - Group 1: Starting 2nd November 2020, Mondays 7.00 pm – 8.30 pm
- Full course fee: $249
- **Registration closes by 26th October 2020**

Features of Online Classes

- Live Online Classes via Zoom Video Conferencing App
- Easy to use Learning Management System (LMS)
- Fees include the delivery of course handbook within the Adelaide metropolitan area.

STEM Centre Australia
ABN: 18 634 498 810
www.TutorsSA.com.au
Ph: +61 08 8166 7579 / 0412 258 554
info@TutorsSA.com.au

How to Enrol

- Step 1: Complete the Online Enrolment Form HERE.
- Step 2: Pay STEM Centre Australia the course fee in advance by **23/10/2020 (face-to-face lessons) or 26/10/2020 (online lessons)**. An invoice will be sent to you with the payment details once the enrolment form is completed.

We look forward to guiding your child on this voyage of discovery, which will see them excel well beyond their regular school classroom.

With limited places available, secure your child's future today by contacting us on 0412 258 554 or info@TutorsSA.com.au.

Kind regards,
STEM Centre Australia Team

STEM Centre Australia
A 27 Montacute Road, Campbelltown SA 5074
P +61 08 8166 7579
M +61 0412 258 554
E info@TutorsSA.com.au
W www.TutorsSA.com.au