Engineering Maths Support Unit

The success in Diploma of Engineering is strongly connected to mathematical skills. Due to diverse intake at SIBT, our students have a variety of mathematical needs in order to successfully complete their Diploma of Engineering. Therefore, we have introduced the **Engineering Maths Support Unit** (EMSU). This unit will provide our students with fundamental mathematical skills that are essential for studying Engineering at Diploma level and beyond.

EMSU is **free-of-charge**, but it is a **compulsory** unit for all students, unless they can demonstrate sufficient maths skills by passing a Maths Readiness Test (MRT). All commencing students in Diploma of Engineering are required to undertake the MRT prior to finalising enrolment. The MRT result will determine if students will need to stay in EMSU or can be exempted to start a higher level engineering maths unit in Session 1.

Maths Readiness Test

The maths readiness test is compulsory for all students intending to study Engineering at SIBT.

Content of Test

The test contains basic algebra, factorisation of quadratic equations, solving equations using middle-term, indices, simple trigonometry, basic calculus (i.e first principle of differentiation, product rule, chain rule and quotient rule and basic integration to find out areas between two curves). A **sample test paper** is provided via the link below **(or CLICK HERE)** to download the PDF file.

http://bit.ly/MRTSample

When is the Test?

The test will be conducted online via Mathspace during Orientation Week. Students are encouraged to sign-up for Mathspace for free and practice problems to familiarize with the software. The instructions for Mathspace are provided at the end of this document **(Appendix 1)** for students to try and practice at home.

How is the Test Structured?

The test contains 25 questions and the allocated time is 90 minutes. First 15 questions are basic algebra and last 10 questions are simple calculus (5 questions on differentiation and 5 questions on integration).

Permitted Materials

Students can bring their own calculator (non-programmable only), pen and pencils. Laptops or iPads will be provided by SIBT on the day.

Important Terminologies

We understand that most of our students may not have learned their Maths in English. Therefore, we prepared a list of important terminologies specifically for this Maths Readiness Test. The Glossary (Appendix 2) should help students overcome the language barrier during the test.

Appendix 1

Step by Step Instruction to sign up for Mathspace

1. Copy and paste this link **https://mathspace.co/join/?code=AV93RV** onto your browser.

2. Click on **Free Sign up** – Mathspace link. You will be directed to the page below.
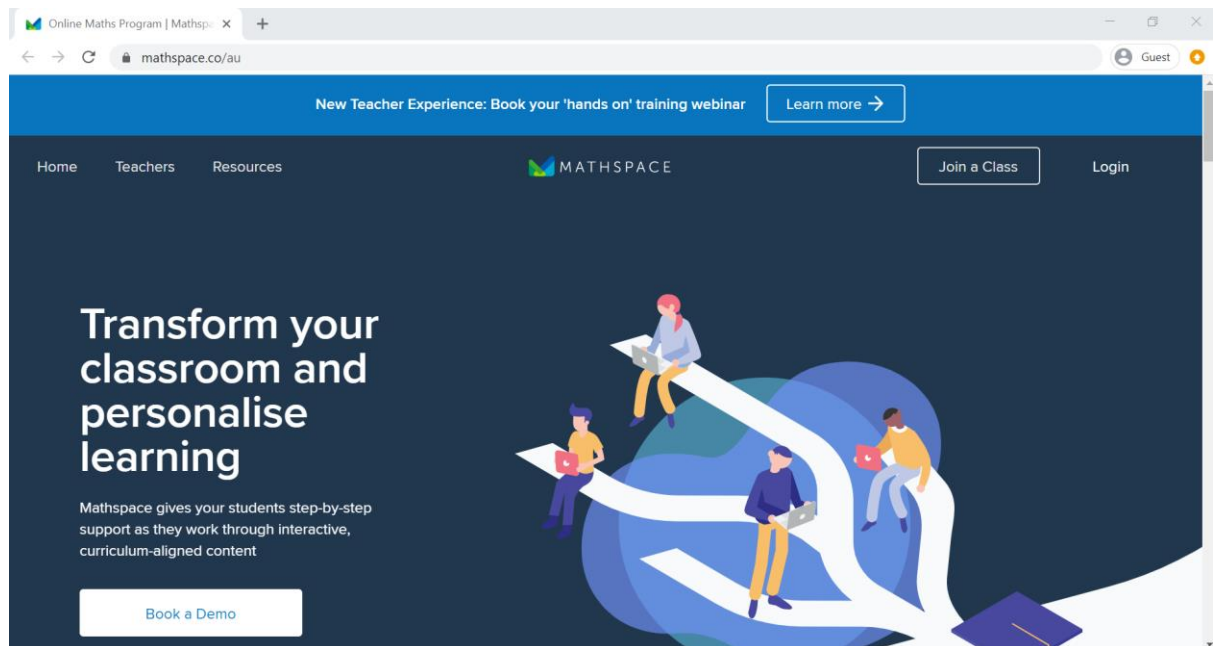
3. Click on **Join a Class** then you will be directed to this following page. Use the class code: <mark>AV93RV</mark> and click on **Create new account.**

Join a class

Join your class on Mathspace by using the **class code** provided by your teacher.

Class code

> Enter Class Code as above

I have an account	Create new account

First name | Last name

> Shirajul

> Sagar

Email

> shirajul.sagar@gmail.com

Password

> ••••••••••

By clicking "Join class" I agree to the Mathspace Terms and Conditions and Privacy Policy

Join class

4. Fill in the required information as asked (i.e your first name, last name, email id and password).

5. Click on **Join Class.**

6. Click on the **2022 S3 MRT Practice Questions for MRT** (**M**ath **R**eadiness **T**est) and start practicing! Good luck 😊.

7. You can directly join the class by clicking on this link (http://mathspace.co/join/) and using this code: **AV93RV** as well.

Appendix 2

Glossary

1. **Solve** – means to find the value of unknown in the equation given *(i.e "v or x")*
2. **Index form** –for example $a * a * a = a^3$, $\boldsymbol{a^3\ is\ the\ index\ form}$
3. **Factorize and Simplify** – means to resolve the given expression into factors and cancel out like terms
4. Write the solution separated by commas – for example, if the results are $x = 2\ and\ x = -3\ then\ write\ the\ results\ as\ \boldsymbol{x = 2, -3}$
5. **Steepening** of the graph means the graph coming closer to y-axis
6. **Vertical shift** means the graph moves up or down in y-axis
7. **Horizontal shift** means the graph moves right or left in x-axis
8. **Surd forms** mean writing the number in the exact form $(i.e\ \sqrt{12} = 2\sqrt{3},\ \boldsymbol{NOT\ 3.46})$
9. **Nearest cent** is same as dollars in two decimal places (i.e two dollar and 57 cents will be written as $2.57)
10. **Scientific notation form** is written as $a * b^n\ where\ 1 \le a < 10\ and\ n\ is\ an\ integer$
11. **Annually** means once a year.
12. **Differentiate** means to find the first derivative. It can be written in any of the following form $or\ \frac{dy}{dx}$
13. **Exact area** should be written is either integer value or surd form.
14. **Integer** is a math term for a number that is a whole number (i.e 1, 2, -5 are all integers).