

SHEIKH SAUD BIN SAQR AL QASIMI
FOUNDATION FOR POLICY RESEARCH



مؤسسة الشيخ سعود بن صقر القاسمي
لبحوث السياسة العامة

Introduction to Latex Programming



2020-2021

Instructors

REDA AHMED: Is a mathematics teacher at Ras Al Khaimah Secondary School for Boys. He holds a Master's degree in mathematics from the University of New Castle in America, a Masters of Education from the American University of Ras Al Khaimah. He often travels to Malaysia to explore new trends in education in that context. Reda has gained expansive experience in teaching and learning. He has a strong conviction that teachers must be proud of their profession because it is the profession of the prophets and messengers. He is a trainer at the Sheikh Saud bin Saqr Al Qasimi Foundation for Policy Research and has participated in a range of professional development activities, thanks to the Foundation.

Muhammad Ata Khader: Is a biology teacher at Ras Al Khaimah Secondary School for Boys, where he has been working for the last ten years, while developing his interesting in instructional technology and science education. He holds a MSc in biology from the Hashemite University in Jordan where he started as a university teaching assistant and then became a biology teacher at the Jordanian Ministry of Education before moving to the UAE. Muhammad is an alumnus of the first Al Qasimi Foundation “21st

Century Teaching” course, he subsequently became a teaching assistant and then workshop instructor for many courses. His advice to new participants is to learn as much as possible from workshop instructors, fellow participants, apply learning into their teaching practice in the classroom to find out what works best for different situations, and to share this knowledge with colleagues.

Course Overview

Course Description:

The Ministry of Education, the UAE and job ethics call for Professional Development and Scientific Research, hence the Introduction to Latex Programming course for mathematicians and researchers.

The workshops will support teachers of Math and Physics to create Latex documents through hands-on learning activities throughout the course.

The sessions will be useful for typesetting mathematical notations, cross- platforms, backward compatible, and will produce PDF files that can be opened on any device. Finally, it is a free open-source and highly customized.

By the end of this course, participants should be able to:

- Recognize the importance of Latex program
- Create a Latex document online or offline.
- Create common Mathematical Notation in Latex.
- Save files and code
- Create Brackets, Tables and Arrays.
- Download a package of symbols
- Create Lists/Latex
- Use a pencil, calculator, ruler and notebooks while typing Latex
- Text and document formatting
- Analyze packages, Macros and Graphics.
- Analyze errors and Debugging.
- Learn texmaker and Overleaf.
- Understand Calculus Notation. (functions, the domain, range and etc.)
- Format a Math paper and save it.
- Create a Beamer Slide Presentation
- Format a Slide Presentation.
- Create Anki Flashcards

Topics:

- Workshop 1

Participants will:

- 1) Recognize the importance of Latex program
- 2) Sign up to the website to be able to work.
- 3) Create a latex document online or offline.

Activities:

1-AFL

2-Design a project Template (discussing about how long it took to make)

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- Workshop 2

Participants will:

- 4) Create common Mathematical Notations in Latex.
- 5) Save files and code them
- 6) Create Brackets, Tables and Arrays.
- 7) Download a package of symbols they will use

Activities:

1- Design a template paper that contains an introduction and ending paragraph.

2- Make a project using symbols 1) $[x^n + y^n = z^n]$

3- 2) In physics, the mass-energy equivalence is stated

4- by the equation $E=mc^2$, discovered in 1905 by Albert Einstein.

5- 3) $f(x) = x^2 + 3x + 2$

6- $f(x) = x^2 + 3x + 2$

7- $f(x) = x^2, +3x, +2$

8-

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- Workshop 3

Participants will:

- 1) Create Lists Latex
- 2) Use a pencil, calculator, ruler and notebooks while typing latex
- 3) Text and document format
- 4) Analyze packages, Madros and Graphics.

Activities:

- 5) **Make a project containing lists** 1) List are really easy to create
- 6)
- 7) `\begin{itemize}`
- 8) `\item` One entry in the list
- 9) `\item` Another entry in the list
- 10) `\end{itemize}`
- 11) 2) `\begin{itemize}`
- 12) `\item` The individual entries are indicated with a black dot, a so-called bullet.
- 13) `\item` The text in the entries may be of any length.
- 14) `\end{itemize}`
- 15) 3) `\begin{enumerate}`
- 16) `\item` The labels consist of sequential numbers.
- 17) `\begin{itemize}`
- 18) `\item` The individual entries are indicated with a black dot, a so-called bullet.
- 19) `\item` The text in the entries may be of any length.
- 20) `\end{itemize}`
- 21) `\item` The numbers start at 1 with every call to the `enumerate` environment.
- 22) `\end{enumerate}`

- Workshop 4

Participants will:

- 1) Analyze errors and Debugging.
- 2) Learn about texmaker and Overleaf.
- 3) Demonstrate understanding Calculus Notations. (the function, the domain, range and etc.)

Activities:

- 4) KWL strategy (what you Know, what you Want and what you Learnt).

```
Make a project using (1) % In your preamble (before \begin{document})
\usepackage{amsmath}

% In your document

$$
\begin{matrix}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9
\end{matrix}
$$
```

(2)

```
Integral $\int_{a}^{b} x^2 \, dx$
inside text
```

```
\[ \int_{a}^{b} x^2 \, dx \]
```

(3)

```
\[
\oint_V f(s) \, ds
```

\]

(4) Sum $\sum_{n=1}^{\infty} 2^{-n} = 1$ inside text

$\left[\sum_{n=1}^{\infty} 2^{-n} = 1 \right]$

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Workshop 5

Participants will:

- 1) Format a Math paper and save it.
- 2) Create a Beamer Slide Presentation
- 3) Format the Slide Presentation.
- 4) Create Anki Flashcards

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Certificates

At the end of the 5th workshop, participants will receive a certificate of excellence for:

- 100% workshop attendance (10 hours)
- Completion of all in-workshop assignments
- Completion of all homework assignments.

Dates of workshops

Workshop	Date and Time
1	9 am to 11 am, Saturday 6/2/2021
2	9am to 11 am, Saturday 20/2/2021
3	9 am to 11 am, Saturday 6/3/2021
4	9 am to 11 am, Saturday 20/3/2021
5	9 am to 11 am, Saturday 3/4/2021