Title goes here!

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Prologue

1 Introduction

Starts here!

2 Inline Centering

I used \ara{} command here!

Equivalently, \centerline{} can be used!

3 Samples from `BNth.sty` file

☐\itm
■ \gtm

▭ \task
✓ \taskdone

☐ \todo
☑ \done

✓ \cmark
✗ \xmark

3.1 Address symbols

✉ \mail | ✆ \call | ☎ \tel | ☎ \phone

3.2 Fancy symbols

☕ \coffee | \rest | \book | \read | \bed

❶ \ONEF ❷ \TWOF ❸ \THREEF ❹ \FOURF ❺ \FIVEF
❻ \SIXF | ❼ \SEVENF | ❽ \EIGHTF | ❾ \NINEF | ❿ \TENF

① \ONE ② \TWO ③ \THREE ④ \FOUR ⑤ \FIVE
⑥ \SIX | ⑦ \SEVEN | ⑧ \EIGHT | ⑨ \NINE | ⑩ \TEN

4 Colored boxes

5 Gray color box

5.1 Inline gray box

This is colorblue **me** ⟶ This is **me**.

5.1.1 Using gbox environment

```
\begin{gbox}\centering
    I am smart!
\end{gbox}
```

I am smart!

5.1.2 Using SBN environment

```
\begin{SBN}
   A block of text placed in a "gray" box!
\end{SBN}
```

A block of text placed in a "gray" box!

5.1.3 Crude way but more control

```
{\color{red}\colorbox{yellow!50}{\parbox{10cm}{ ...  }}}
```

highlight + boldface + long long long long long long long long long long long long long long long long long long long colored text

5.2 High-lighting

5.2.1 HL environment

```
\begin{HL}
...
\end{HL}
```

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

5.2.2 \hl{}

```
\hl{...}
```

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo.Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Morbi ac orci et nisl hendreritmollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus etmagnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorpervestibulum turpis. Pellentesque cursus luctus mauris

Adding \sepbar here prints:

* * *

6 Figure

Figure 1 `(\Fig{fig-label})` is an example for including figure in LaTeXfile.

```
\begin{figure}[!htp]
\centering
\includegraphics[trim=0in 0in 0in 0in, clip=true,
keepaspectratio=true, width=0.75\textwidth]{Graph}
\caption{\label{fig:0}Caption goes here.}
\end{figure}
```

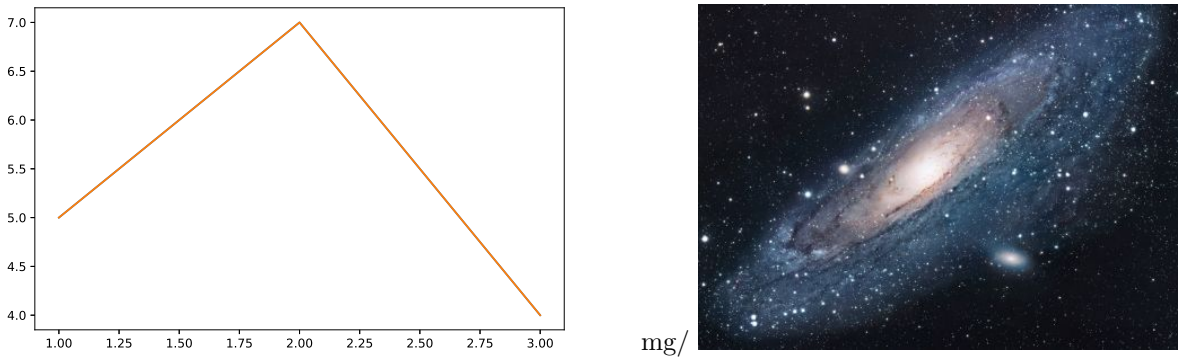


Figure 1: Caption goes here.

7 Insert Figures

Figure 1 is an example how a figure can be included in the LaTeXfile. The graphic formats including .png, *.jpg, *.pdf, and *.eps can be used.

```
\begin{figure}[!htp]
\centering
\includegraphics[keepaspectratio=true,
width=0.75\textwidth]{TL}
\caption{Caption goes here.}
\label{fig:0}
\end{figure}
```

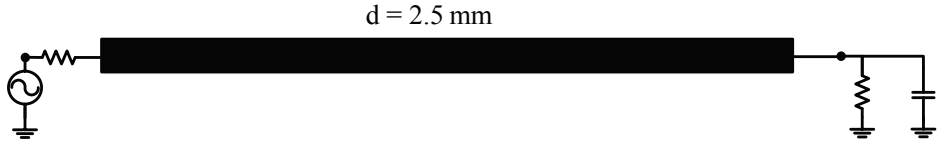


Figure 2: Caption goes here.

7.1 Trimming the picture

```
\begin{figure}[!htp]
\centering
\includegraphics[trim=0in 0in 0in 0in, clip=true,
keepaspectratio=true, width=10pc]{universe.jpg}
\caption{The caption goes here.}
\label{fig:1}
\end{figure}
```

Figure 3: The caption goes here.

7.2 \infig{}

```
\ara{\infig{21pc}{smile}{Caption.}}
```

Figure 4: Caption.

7.2.1 Example

```
\begin{center}
\singlespacing
\infig{15pc}{smile}{Caption1.}
\stepcounter{figure}
\includegraphics[width=15pc]{TL}
\ara{Figure~\arabic{figure}: Caption2.}
\end{center}
```

Figure 5: Caption1.

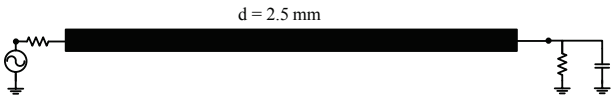


Figure 6: Caption2.

8 Equation

```
\begin{equation}
\label{eq:art1}
\boxed{
\mat{A}=\left[
\begin{array}{ccc}
1 &-2 & 3 \\
-4 & 5 & 6 \\
7 & 8 &-9
\end{array}
\right]
}
\end{equation}
```

$$\boxed{\mathbf{A} = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 5 & 6 \\ 7 & 8 & -9 \end{bmatrix}} \tag{1}$$

8.1 Table

8.1.1 Sample 1: `tabular` env.:

```
\begin{center}
\begin{tabular}{lll | lll| lll}
$\alpha$& \verb!\alpha!& Alpha &
$\beta$& \verb!\beta!& Beta &
$\gamma$& \verb!\gamma!& Gamma \\
\end{tabular}
\end{center}
```

α `\alpha` Alpha | β `\beta` Beta | γ `\gamma` Gamma

8.1.2 Sample 2: Simple Table

```
\begin{center}
\begin{tabularx}{0.9\textwidth}{ |l|X| }
  \hline
   &  \\
  \hline
\end{tabularx}
\end{center}
```

`optimize`	In compilation process g++ optimizes the build for the speed of running.If you tell it to build optimize, it will make the binary run as fast as possible but it will remove all information required for debugging.
`debug`	To compile binary for debugging.

8.1.3 Sample 3: Column with prescribed width

```
\begin{center}
\begin{tabularx}{\textwidth}{ |l|p{3cm}|X| }
  \hline
   &  &  \\
  \hline
\end{tabularx}
\end{center}
```

#1	This is a Test. This is a Test.	Test title.
#2	Line-2	Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

8.1.4 Sample 4: p,m and b columns in tables

Source: https://tex.stackexchange.com/questions/35293/p-m-and-b-columns-in-tables

```
\begin{tabular}{|p{0.3\linewidth}|m{0.3\linewidth}|b{0.3\linewidth}|}
\hline
\centering  &  \centering &  \centering  \tabularnewline
\hline
 &  &
\tabularnewline
\hline
\end{tabular}
```

header p	header m	header b
text which is considerably longer than the width of the column	text which is considerably longer than the width of the column	text which is considerably longer than the width of the column

- **p** means normal cells, they are like parbox with alignment at the top line
- **m** means alignment in the vertical center, i.e. the baseline is in the center.
- **b** means alignment at the bottom, so the baseline is at the bottom line

header p	header m	header b
text which is considerably longer than the width of the column	text which is considerably longer than the width of the column	text which is considerably longer than the width of the column

Figure 7: the top line of the first text, the middle of the second and the bottom line of the last text are all in a line.

A Appendix: Sample

Introduction about MATLAB® is presented in Appendix B.

B Appendix: MATLAB

```
function res(n1,n2,val)
% Adds the stamp of a resistor with a value of
% "val" (Ohms) connected between nodes n1 and
% n2 to the G matrix in circuit representation.
%
%                  val
%     n1 O-----/\/\/\/\---O n2     where R=val (ohms)
%-------------------------------------------------------
global G    %define global variable

if (n1 ~= 0)
    G(n1,n1) = G(n1,n1) + 1/val;
end

if (n2 ~= 0)
    G(n2,n2) = G(n2,n2) + 1/val;
end

if (n1 ~= 0) && (n2 ~= 0)
    G(n1,n2) = G(n1,n2) - 1/val;
    G(n2,n1) = G(n2,n1) - 1/val;
end

end %func
```

C Appendix: Extended Math

C.1 Some math symbols

x\p:	x'
\mat{A}\T:	$\mathbf{A}^{\mathsf{T}}$
\mat{A}\Trans:	$\mathbf{A}^{\mathrm{T}}$
\mat{A}\H:	$\mathbf{A}^{\mathrm{H}}$
\mat{A}\Hes:	$\mathbf{A}^{*\mathsf{T}}$
\mat{A}\NegT:	$\mathbf{A}^{-\mathrm{T}}$

\secline gives:

---

* * *

C.2 More equation samples

Let us include an inline equation $x = 2$ or a bigger equation in the file. We will refer to it as (1).

```
\begin{equation}
\label{eq:art1c}
\mat{A}=\left[
\begin{array}{ccc}
1 &-2 & 3 \\
-4 & 5 & 6 \\
7 & 8 &-9
\end{array}
\right]
\end{equation}
```

$$\mathbf{A} = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 5 & 6 \\ 7 & 8 & -9 \end{bmatrix} \tag{2}$$

One may want to do some fancy stuff (e.g.) as shown in (3).

```
\begin{equation}
\label{eq:art2}
\mat{A}=\left[
\begin{array}{c|c|c}
1 &-2 & 3 \\
\hline
-4 & 5 & 6 \\
\hline
7 & 8 &-9
\end{array}
```

```
\right]
\end{equation}
```

$$\mathbf{A} = \left[\begin{array}{c|c|c} 1 & -2 & 3 \\ \hline -4 & 5 & 6 \\ \hline 7 & 8 & -9 \end{array}\right] \tag{3}$$

If an equation is too big to be written in one line We also can split it in two or more lines as shown in (4).

```
\begin{multline}
\label{eq:art3}
x=q+w+E+r+t+y+u+i+O+p+a+S+D+F+G+H+j+k+l= \\
SSSSS+L_{11}\times lllll\times (zxc*vbn)^3/2
\end{multline}
```

$$x = q + w + E + r + t + y + u + i + O + p + a + S + D + F + G + H + j + k + l = \\ SSSSS + L_{11} \times lllll \times (zxc * vbn)^3/2 \tag{4}$$

May be there are formulas or equations that may look better if the are written in two lines or more as

```
\begin{align}
\label{eq:art4}
x &= A+b+C \nonumber  \\
&= \pm Y^{10}_{ex}  \\
&= z
\end{align}
```

$$\begin{aligned} x &= A + b + C \\ &= \pm Y_{ex}^{10} \qquad (5) \\ &= z \qquad (6) \end{aligned}$$

The following is sample of a bit twisted way of including an equation.

```
\begin{equation} \label{eq:art10}
\begin{array}{*{20}{c}}
\begin{array}{l}
\textnormal{Error\;in}\\
\textnormal{Trajectories}\;{\buildrel \Delta \over =}
\end{array}
\sqrt{\dfrac{\sum\limits_{j = 1}^N \; \sum\limits_{i = 1}^n
{\left({x_i^{(org)}(j)-x_i^{(mor)}(j)}\right)}^2}{n\times N}}
\end{array}
\end{equation}
```

$$\text{Error in Trajectories} \triangleq \sqrt{\frac{\sum_{j=1}^{N}\sum_{i=1}^{n}\left(x_i^{(org)}(j) - x_i^{(mor)}(j)\right)^2}{n \times N}} \tag{7}$$

D Appendix: More table examples

```
\begin{center}
\singlespacing\packed
\begin{tabular}{|c|c|c|c|c|c|}
\hline
1& 2 &  3& 4 & 5 & 6 \\
\hline
a& b & c & d & e & f \\
\hline
\end{tabular}
\end{center}
```

1	2	3	4	5	6
a	b	c	d	e	f

```
\begin{singlespace}
\begin{table}[!th]
\centering
\begin{tabular}{|c|p{4cm}|}
\hline
\textbf{First} & This is a Test. This is a Test.
This is a Test. This is a Test. This is a Test.
This is a Test. This is a Test.   \\ \hline
\end{tabular}
\caption{Sample table.}
\label{tab:3}
\end{table}
\end{singlespace}
```

First	This is a Test. This is a Test. This is a Test. This is a Test. This is a Test. This is a Test.

Table 2: Sample table.

D.1 `\tabularx`

```
\begin{center}
\begin{tabularx}{\textwidth}{ |l|c|r|X| }
\hline
label 1 & label 2 & label 3 & label 4 label 4
label 4 label 4 label 4 label 4 \\  \hline
```

```
item 1 item 1  & item 2 item 2 & item 3 item 3
& item 4 item 4 item 4 item 4 item 4 item 4 item 4
item 4 \\ \hline
\end{tabularx}
\end{center}
```

label 1	label 2	label 3	label 4 label 4 label 4 label 4 label 4 label 4
item 1 item 1	item 2 item 2	item 3 item 3	item 4 item 4 item 4 item 4 item 4 item 4 item 4

```
\begin{center}
\begin{tabularx}{\textwidth}{ |l|X| }
\hline
label 1 & This is a Test. This is a Test. This is a Test.
This is a Test. This is a Test. This is a Test.
This is a Test.  \\ \hline
\end{tabularx}
\end{center}
```

label 1	This is a Test. This is a Test. This is a Test. This is a Test. This is a Test. This is a Test. This is a Test.

E Appendix: Extras from `BNsx.sty`

E.1 Boxes & Frames

E.1.1 `Mbox` environment

```
\begin{MBOX}
\ara{\bfseries Test}
\end{MBOX}
```

Test

E.1.2 `tBox` environment

```
\begin{tBox}
test1
\end{tBox}
```

test1

E.1.3 `fBox` environment

```
\begin{fBox}
test1
\end{fBox}
```

test1

E.2 Titles

E.3 \TTL{}

```
\TTL{This is a test.}
```

This is a test.

E.4 \TTLU{}

```
\TTLU{This is a test.}
```

This is a test.

E.5 \TTC{}

```
\TTC{This is a test.}
```

This is test

E.6 \TTCU{}

```
\TTCU{This is a test.}
```

This is test

E.7 Text in a gray background \NB{} or \GBOX{}

E.8 \NB{}

```
\NB{This is a test.}
```

This is test

This is a `\NB{test2}` to see!

This is a ***test2*** to see!

E.9 \GBOX{}

```
\GBOX{This is the test!}
```

This is a test!

```
\ara{\GBOX{This is the test!}}
```

This is the test!

E.10 Adding email and address for a letter

Requires the inclusion of the following font package in the preamble:

```
\usepackage{fontawesome}
```

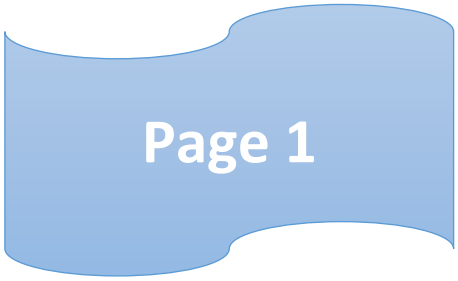

Email: xxx@ieee
Email: xxx@ieee
Mobile: (+1) 613 xxx xxxx
Phone: (+1) 613 xxx xxxx
Phone: (+1) 613 xxx xxxx
Address: 55 Golflinks Drive,
Ottawa, ON, Canada K2J 4Y3
Website: www.bnouri.com
LinkedIn: www.bnouri.com
Skype: live:sbn_16
IM: live:sbn_16

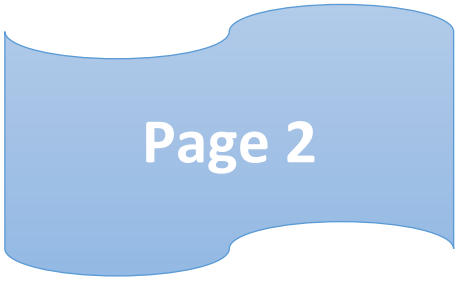
E.11 Symbols for Courses

\MAT	\SIM	\PEN
\HAND	(Type!) \TYPE	

E.12 Some symbols

• \DOT	○ \CIR	□ \SQR	■ \SQRF	▷ \TRI
▶ \TRIF	★ \STRF			


Page 1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For more information [1–4] can be also referred to.

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