Latex Manual

Symbols:
\mathcal{O} Big O; micron

Spacing:
\, very small spacing, e.g., between number and factorial sign
\usepackage[margin = 0.5cm]{caption} limit the width of the figure caption
\doublespacing set every line double spacing
\vspace{-1em} reduce the space between floating objects, e.g. caption of figures, etc.
\mbox{} force whatever inside {} to stay in the same line

Change paper dimension:
\usepackage{geometry} % to change the page dimensions
\geometry{a4paper} % or letterpaper (US) or a5paper or....
\geometry{margin=1in} % change the margins all round

Referencing:
1. sections
\section{....}
\label{....} % label name
\ref{....} % refer to the label name

Equation arrays:
1. one long equation connected by = or other markers
\begin{eqnarray}
  \label{e:....}
  .... & relation marker & .... \nonumber \\ % if does not want numbering for certain equation
  \label{e:....}
  & relation marker & ....
\end{eqnarray}
2. several left-justified equations:
\usepackage{amsmath}

```
\begin{align}
    \label{e:....}
    ....& relation marker .... \\
    \label{e:....}
    ....& relation marker ....
\end{align}
```

Table:

```
\begin{table}[]
    \centering
    \begin{tabular}{|....|....|} % l - left justified; c - central
        \hline % lines
        aa & bb \\
        \hline
        \multicolumn{a}{|....|}{Content} \\ % a - No. of columns to be combined
    \end{tabular}
    \caption{}
    \label{tab:....}
\end{table}
```

Figures:

1. different figures on the same row

```
\begin{figure}
    \centering
    \begin{minipage}[b]{.49\textwidth}
        \centering
        \includegraphics[width=.99\textwidth]{....}
        \caption{....}
        \label{fig:....}
    \end{minipage}
\end{figure}
```

2. figures that share the same title

```
\usepackage{subfigure}
\begin{figure}
    \begin{center}
    \subfigure[....]{
        \includegraphics[width=.49\textwidth]{....}
        \label{fig:....}}
    \subfigure[....]{
        \includegraphics[width=.49\textwidth]{....}
        \label{fig:....}}
    \caption{....}
```

```
    \label{fig:....}
    \end{center}
\end{figure}
```

To attach codes from other files such as matlab:

```
\usepackage{listings}
\lstset{ language = c,
    breadlines = true,
    basicstyle = \footnotesize
}
\lstinputlisting{filename.c}
```