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ภาคผนวก

**ภาคผนวก ก.****เอกสารต้นฉบับที่สร้างขึ้น**

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**เอกสารต้นฉบับที่มีการใช้งานจริง**

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## EFFECT OF REDOX INITIATION TYPES ON EMULSION POLYMERIZATION OF HYDROPHILIC VINYL MONOMERS ONTO NATURAL RUBBER LATEX

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**Introduction** The polymerization of hydrophilic monomers on NR latex is a new topic. Acrylonitrile and methacrylic acid are partially copolymerized using benzoyl peroxide<sup>1</sup>. Other hydrophilic monomers<sup>2</sup> are used to prepare a new type of product such as adhesive for metal work. Dimethylaminoethyl methacrylate (DMAEMA) and dimethyl aminoethyl acrylate (DMAEA)<sup>(3,4)</sup> are the interesting monomers worthwhile investigation because of the latex unparalleled stability. This article investigates the modification of NR by grafting with DMAEMA and DMAEA.

**Experimental Results and Discussion** The graft copolymers of two hydrophilic vinyl polymers, poly(DMAEA) and poly(DMAEMA), grafted on the NRL were prepared from the high ammonia natural rubber (HANR) latex by emulsion graft copolymerization. In this work, the effects of redox initiation systems, CHP/TEPA, t-BHP/TEPA,  $K_2S_2O_8/K_2S_2O_5$  on the grafting properties were studied as shown in Table 1. Fig. 1 shows the conversion, grafting efficiency (GE), and grafting performance of NR-g-DMAEMA copolymers, using different types of initiator system, CHP/TEPA, t-BHP/TEPA, and  $K_2S_2O_8/K_2S_2O_5$  when keeping the other parameters constant. It can be seen that CHP/TEPA gave the highest GE and the smallest homopolymer content. The CHP/TEPA was concluded to be more effective than t-BHP/TEPA or  $K_2S_2O_8/K_2S_2O_5$  for grafting DMAEMA onto natural rubber. This can be explained that the partitioning ability of CHP into NR is higher than those of t-BHP

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**Conclusion** The CHP/TEPA, t-BHP/TEPA or  $K_2S_2O_8/K_2S_2O_5$  initiation for grafting of the DMAEMA or DMAEA on NRL revealed different grafting performance.

**Acknowledgement** The Royal Golden Jubilee Program from the Thailand Research Fund is gratefully acknowledged for the full financial support under grant PHD/0041/2543.

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**Experimental Results and Discussion** The graft copolymers of two hydrophilic vinyl polymers, poly(DMAEA) and poly(DMAEMA), grafted on the NRL were prepared from the high ammonia natural rubber (HANR) latex by emulsion graft copolymerization. In this work, the effects of redox initiation systems, CHP/TEPA, t-BHP/TEPA,  $K_2S_2O_8/K_2S_2O_5$  on the grafting properties were studied as shown in Table 1. Fig.1 shows the conversion, grafting efficiency (GE), and grafting performance of NR-g-DMAEMA copolymers, using different types of initiator system, CHP/TEPA, t-BHP/TEPA, and  $K_2S_2O_8/K_2S_2O_5$  when keeping the other parameters constant. It can be seen that CHP/TEPA gave the highest GE and the smallest homopolymer content. The CHP/TEPA was concluded to be more effective than t-BHP/TEPA or  $K_2S_2O_8/K_2S_2O_5$  for grafting DMAEMA onto natural rubber. This can be explained that the partitioning ability of CHP into NR is higher than those of t-BHP or  $K_2S_2O_8$  due to its higher hydrophobicity. The partitioning ability also affects locus of grafting reaction. It is expected that, for the CHP/TEPA system, the higher radical concentration could be found on the NR surface than those in t-BHP/TEPA and  $K_2S_2O_8/K_2S_2O_5$  systems. Because t-BHP is partially soluble in both organic and aqueous phases while  $K_2S_2O_8/K_2S_2O_5$  is only soluble in The graft copolymerization of DMAEA or DMAEMA was carried out at four reaction temperatures between 15 and 30°C while keeping the concentrations of other reaction parameters constant. It was found that the higher reaction temperature usually produces the greater conversion because more radicals are generated to consume monomer molecules. The decomposition rate of the initiators (CHP and t-BHP) depends on the reaction temperature. Increasing the reaction temperature produced more alkyloxyl radicals. It is also known that the transfer of alkyloxyl radicals to rubber chain produces

## EFFECT OF REDOX INITIATION TYPES ON EMULSION POLYMERIZATION OF HYDROPHILIC VINYL MONOMERS ONTO NATURAL RUBBER LATEX

Wiyong Kangwansupamonkon<sup>1,2</sup>, Robert G. Gilbert<sup>2</sup> and Suda Kiatkamjornwong<sup>3</sup>

<sup>1</sup>Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand ;

<sup>2</sup>Key Centre for Polymer Colloids, School of Chemistry, University of Sydney, Sydney, NSW 2006, Australia ;

<sup>3</sup>Department of Imaging and Printing Technology and Multidisciplinary Program of Petrochemistry and Polymer Science, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand. 3Tel : +66 2218 5041 (Fax : +66 2218 5041, e-mail : ksuda@chula.ac.th)

**The CHP/TEPA, t-BHP/TEPA or  $K_2S_2O_8/K_2S_2O_5$  initiation for grafting of the DMAEMA or DMAEA on NRL revealed different grafting performance. The CHP/TEPA was found to be the better initiating system. Monomer concentration and reaction temperature controlled the extent of grafting and homopolymer. Monomer partitioning to the NR particles is the main attribute of the GE values. The higher reaction temperature accelerated the mobility of monomer molecules and dissociation of the initiation, all of which governed the grafting performance. The hairy structure of the grafted NR was observed via staining.**

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# How to Use the IEEEtran L<sup>A</sup>T<sub>E</sub>X Class

Michael Shell, *Member, IEEE*

(Invited Paper)

**Abstract**—This article describes how to use the IEEEtran class with L<sup>A</sup>T<sub>E</sub>X to produce high quality typeset papers that are suitable for submission to the Institute of Electrical and Electronics Engineers (IEEE). IEEEtran can produce conference, journal and technical note (correspondence) papers with a suitable choice of class options. This document was produced using IEEEtran in journal mode. Conference and correspondence papers typically use a subset of the commands discussed here.

**Index Terms**—Class, IEEEtran, L<sup>A</sup>T<sub>E</sub>X, paper, style, template, typesetting.

## I. INTRODUCTION

WITH a recent IEEEtran class file, a computer running L<sup>A</sup>T<sub>E</sub>X, and a basic understanding of the L<sup>A</sup>T<sub>E</sub>X language, an author can produce professional quality typeset research papers very quickly, inexpensively, and with minimal effort. The purpose of this article is to serve as a user guide of IEEEtran L<sup>A</sup>T<sub>E</sub>X class and to document its unique features and behavior.

This document applies to version 1.6b and later of IEEEtran. Prior versions do not have all of the features described here. IEEEtran will display the version number on the user's console when a document using it is being compiled. The latest version of IEEEtran and its support files can be obtained from IEEE's web site [2], or CTAN [1]. This latter site may have some additional material, such as beta test versions and files related to non-IEEE uses of IEEEtran.

Complimentary to this document are the files<sup>1</sup> `bare_conf.tex` and `bare_jrn1.tex` which are "bare bones" example (template) files of a conference and a journal paper, respectively. Authors can quickly obtain a functional document by using these files as starters for their own work.

It is assumed that the reader has at least a basic working knowledge of L<sup>A</sup>T<sub>E</sub>X. Those so lacking are strongly encouraged to read some of the excellent literature on the subject [3]. General support for L<sup>A</sup>T<sub>E</sub>X related questions can be obtained in the internet newsgroup `comp.text.tex`. There is also a searchable list of frequently asked questions for this newsgroup [4].

Please note that the appendices sections contain information on installing the IEEEtran class file as well as tips on how to avoid commonly made mistakes.

Manuscript created February 25, 2002; revised November 18, 2002. This work was supported by the IEEE. The opinions expressed here are entirely that of the author. No warranty is expressed or implied. User assumes all risk.

M. Shell is with the Georgia Institute of Technology.  
Email: `mshell@ece.gatech.edu` See [1] for current contact information.

<sup>1</sup>Note that it is the convention of this document not to hyphenate command, file or in-main-text URL names and to display them in `typewriter` font. Within such constructs, spaces are not implied at a line break and will be explicitly carried into the beginning of the next line. This behavior is not a feature of IEEEtran, but is used here to illustrate computer commands verbatim.

## II. CLASS OPTIONS

There are a number of class options that can be used to control the overall mode and behavior of IEEEtran. These are specified in the traditional L<sup>A</sup>T<sub>E</sub>X way. For example,

```
\documentclass[9pt,technote]{IEEEtran}
```

is used with correspondence (technote) papers. The various categories of options will now be discussed. For each category, the default option is shown in bold. The user must specify an option from each category in which the default is not the one desired. The various categories are totally orthogonal to each other — changes in one will not affect the defaults in the others.

### A. *9pt, 10pt, 11pt, 12pt*

There are four possible values for the normal text size. 10pt is used by the vast majority of papers. The two exceptions are technote papers, which use 9pt text, and the initial submissions to some conferences which use 11pt.

### B. *draft, draftcls, draftclsnofoot, final*

IEEEtran provides for three draft modes as well as the normal final mode. The draft modes provide a larger line spacing to allow for editing comments. The standard draft option puts *every* package used in the document into draft mode. With most graphics packages, this has the effect of disabling the rendering of figures. If this is not desired, one can use the `draftcls` option instead to yield a draft mode that will be confined within the IEEEtran class so that figures will be included as normal. `draftclsnofoot` is like `draftcls`, but does not display the word "DRAFT" along with the date at the foot of each page. When using one of the draft modes, most users will also want to select the `onecolumn` option.

### C. *conference, journal, technote, peerreview, peerreviewca*

IEEEtran offers five major modes to encompass conference, journal, correspondence (technote) and peer review papers. Journal and technote modes will produce papers very similar to those that appear in many *IEEE Transactions* journals. When using technote, most users should also select the 9pt option. The peerreview mode is much like the journal mode, but produces a single-column cover page (with the title, author names and abstract) to facilitate anonymous peer review. The title is repeated (without the author names or abstract) on the first page after the cover page.<sup>2</sup> Papers using the peer review

<sup>2</sup>A blank page may be inserted after the cover page when using the `twoside` (duplex printing) option so that the beginning of the paper does not appear on the back side of the cover page.

# In Catilinam IV <sup>★</sup>

Marcus Tullius Cicero <sup>a</sup>, Julius Caesar <sup>b</sup>, Publius Maro Vergilius <sup>c</sup>

<sup>a</sup> *Buckingham Palace, Paestum*

<sup>b</sup> *Senate House, Rome*

<sup>c</sup> *The White House, Baiae*

## Abstract

Cum M. Cicero consul Nonis Decembribus senatum in aede Iovis Statoris consularet, quid de iis coniurationis Catilinae sociis fieri placeret, qui in custodiam traditi essent, factum est, ut duae potissimum sententiae proponerentur, una D. Silani consulis designati, qui morte multandos illos censebat, altera C. Caesaris, qui illos publicatis bonis per municipia Italiae distribuendos ac vinculis sempiternis tenendos existimabat.

*Key words:* Cicero; Catiline; orations.

## 1 Introduction

Video, patres conscripti, in me omnium vestrum ora atque oculos esse conversos, video vos non solum de vestro ac rei publicae, verum etiam, si id depulsum sit, de meo periculo esse sollicitos. Est mihi iucunda in malis et grata in dolore vestra erga me voluntas, sed eam, per deos immortales, deponite atque obliti salutis meae de vobis ac de vestris liberis cogitate. Mihi si haec condicio consulatus data est, ut omnis acerbitates, omnis dolores cruciatusque perferrem, feram non solum fortiter, verum etiam lubenter, dum modo meis laboribus vobis populoque Romano dignitas salusque pariat.

### 1.1 A subsection

Marcus Tullius Cicero, 106–43 B.C. was a Roman statesman, orator, and philosopher. A major figure in the last years of the Republic, he is best known for his orations against Catiline <sup>1</sup> and for his mastery of Latin prose [5]. He was a contemporary of Julius Caesar (Fig. 1).

<sup>★</sup> This paper was not presented at any IFAC meeting. Corresponding author M. T. Cicero. Tel. +XXXIX-VI-mmmxxi. Fax +XXXIX-VI-mmmxxv.

*Email addresses:* cicero@senate.ir (Marcus Tullius Cicero), julius@caesar.ir (Julius Caesar), vergilius@culture.ir (Publius Maro Vergilius).

<sup>1</sup> This footnote should be very brief.



Fig. 1. Gaius Julius Caesar, 100–44 B.C.

## 2 The argument

Some words might be appropriate describing equation (1), if we had but time and space enough.

$$\frac{\partial F}{\partial t} = D \frac{\partial^2 F}{\partial x^2}. \quad (1)$$

See [1], [2], [3] and [4]. This equation goes far beyond the celebrated theorem ascribed to the great Pythagoras by his followers.

**Theorem 1** *The square of the length of the hypotenuse of a right triangle equals the sum of the squares of the lengths of the other two sides.*

# Style template and guidelines for SPIE Proceedings

Anna A. Author1<sup>a</sup> and Barry B. Author2<sup>b</sup>

<sup>a</sup>Affiliation1, Address, City, Country;

<sup>b</sup>Affiliation2, Address, City, Country

## ABSTRACT

This document shows the desired format and appearance of a manuscript prepared for the Proceedings of the SPIE. It contains general formatting instructions and hints about how to use LaTeX. The LaTeX source file that produced this document, `article.tex` (Version 3.00), provides a template, which can be used in conjunction with `spie.cls`.

**Keywords:** Manuscript format, template, SPIE Proceedings, LaTeX

## 1. INTRODUCTION

This document shows the desired format and appearance of a manuscript prepared for the Proceedings of the SPIE.\* It is prepared using LaTeX2<sub>ε</sub><sup>7</sup> with the class file `spie.cls`. The LaTeX source file used to create this document is `article.tex`, which contains important formatting information embedded in it. These files are available on the Internet at <http://home.lanl.gov/kmh/spie/>. The font used throughout is the LaTeX default font, Computer Modern Roman, which is equivalent to the Times Roman font available on many systems. If this font is not available, use a similar serif font. Normal text has a font size of 10 points<sup>†</sup> for which the actual height of a capital E is about 2.4 mm (7 pt.) and the line-to-line spacing is about 4.2 mm (12 pt.). The font attributes for other parts of the manuscript, summarized in Table ??, are described in the following sections. Normal text should be justified to both the left and right margins. Appendix ?? has information about PostScript fonts.

To be properly reproduced in the Proceedings, all text and figures must fit inside a rectangle 6.75-in. wide by 8.75-in. high or 17.15 cm by 22.23 cm. The text width and height are set in `spie.cls` to match this requirement. The text should begin 1.00 in. or 2.54 cm from the top of the page. The right and left margins should be

**Table 1.** Fonts sizes to be used for various parts of the manuscript. All fonts are Computer Modern Roman or an equivalent. Table captions should be centered above the table. When the caption is too long to fit on one line, it should be justified to the right and left margins of the body of the text.

Article title	16 pt., bold, centered
Author names and affiliations	12 pt., normal, centered
Section heading	11 pt., bold, centered (all caps)
Subsection heading	11 pt., bold, left justified
Sub-subsection heading	10 pt., bold, left justified
Normal text	10 pt., normal
Figure and table captions	9 pt., normal
Footnote	9 pt., normal

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A.A.A.: E-mail: [aaa@tbk2.edu](mailto:aaa@tbk2.edu), Telephone: 1 505 123 1234

B.B.A.: E-mail: [bba@cmp.com](mailto:bba@cmp.com), Telephone: +33 (0)1 98 76 54 32

\*The basic format was developed in 1995 by Rick Herman, SPIE, and Ken Hanson, Los Alamos National Lab.

<sup>†</sup>Font sizes are specified in points, abbreviated pt., which is a unit of length. One inch = 72.27 pt.; one cm = 28.4 pt.

## ภาคผนวก ข.

## ไฟล์คลาสลาเทคซจากภาพเอกสารตัวอย่างที่ 1

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\topmargin}{24.69mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{234.95mm} % = 201.00mm (595pt)
\setlength{\textwidth}{160.87mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{1.76mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\makeititle{
\begin{flushleft}

```



```

\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{flushleft}
\begin{flushleft}
\Author\@author
\vskip 8pt
\end{flushleft}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Abstrac\type\noindent\ignorespaces
}
\newcommand\makefigcaption{
\begin{center}
\vskip 4pt
\Figcaption\type{Fig. } \@fignum{ }
\Figcaption\type\@figcaption
\vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
\begin{flushleft}
\vskip 4pt
\T\ablecaption\type{Table } \@tablename{ }
\T\ablecaption\type\@tablecaption
\vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
\begin{flushleft}
\Section\type{#1}%{ :}
\end{flushleft}
\normalsize
}
\renewcommand\caption[2]{
\vskip 4pt
\Figcaption\type{Fig }{#1}{ }
\Figcaption\type{#2}
\vskip 4pt
}

```

```

}
\renewcommand\ref[2]{
  \l
  \normalize{#1}{.}
  \hspace{2mm}
  \normalize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalize}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{14pt}{16pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

## ไฟล์คลาสลาเท็กซ์จากภาพเอกสารตัวอย่างที่ 2

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Margin
\setlength{\oddsidemargin}{29.63mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{29.63mm} % = 7.75mm (22pt)
\setlength{\topmargin}{34.57mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)

```

```

\setlength{\headsep}{0mm} % = 6.70mm (19pt)

%Body
\setlength{\textheight}{221.90mm} % = 201.00mm (595pt)
\setlength{\textwidth}{150.99mm} % = 127.00mm (360pt)

%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)

%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)

%Column Separation
\setlength{\columnsep}{2.82mm} % =

%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}

%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}

\@twocolumntrue %Make Twocolumn

\RequirePackage{color}

\newcommand\maketitle{
  \begin{flushright}
    \Titletype\uppercase\expandafter{\@title}%
    \vskip 8pt
  \end{flushright}
  \begin{flushright}
    \Authortype\@author
    \vskip 8pt
  \end{flushright}
  \normalsize\@address
  \vskip 8pt
}

\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
  \Abstracttype\noindent\ignorespaces
}

\newcommand\makefigcaption{
  \begin{center}
    \vskip 4pt

```

```

\Figcaptiontype{Fig. }\@fignum{ }
\Figcaptiontype\@figcaption
\vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
\begin{flushleft}
\vskip 4pt
\Tablecaptiontype{Table }\@tablenum{ }
\Tablecaptiontype\@tablecaption
\vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
\begin{flushleft}
\Sectiontype{#1}%{:}
\end{flushleft}
\normalsize
}
\renewcommand\caption[2]{
\vskip 4pt
\Figcaptiontype{Fig }{#1}{ }
\Figcaptiontype{#2}
\vskip 4pt
}
\renewcommand\ref[2]{
\\
\normalsize{#1}{.}
\hspace{2mm}
\normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand\normalsize{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand\Titletype{\fontfamily{phv}\fontseries{b}\fontsize{16pt}{18pt}\selectfont}
\newcommand\Authoritytype{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}

```

```

\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเทคซิกจากภาพเอกสารตัวอย่างที่ 3

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/3/3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\topmargin}{44.80mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{206.38mm} % = 201.00mm (595pt)
\setlength{\textwidth}{140.76mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{6.00mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}

```

```

%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}
\begin{center}
\Authortype\@author
\vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Abstracotype\noindent\ignorespaces
}
\newcommand\makefigcaption{
\begin{center}
\vskip 4pt
\Figcaptiontype{Fig. } \@fignum{ }
\Figcaptiontype\@figcaption
\vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
\begin{flushleft}
\vskip 4pt
\Tablecaptiontype{Table } \@tablename{ }
\Tablecaptiontype\@tablecaption
\vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
\begin{center}
\Sectiontype{#1}%{ :}
\end{center}
}

```

```

\normalsize
}
\renewcommand\caption[2]{
  \vskip 4pt
  \Figcaptiontype{Fig}{#1}{ }
  \Figcaptiontype{#2}
  \vskip 4pt
}
\renewcommand\ref[2]{
  \\\
  \normalsize{#1}{.}
  \hspace{2mm}
  \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablename#1{\gdef\@tablename{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand\normalsize{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand\Tidetype{\fontfamily{phv}\fontseries{b}\fontsize{18pt}{20pt}\selectfont}
\newcommand\Aauthortype{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand\Aabstracttype{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand\Asectiontype{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand\Afigcaptiontype{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand\Atablecaptiontype{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand\Aaddresstype{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand\Afigfigtype{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

#### ไฟล์คลาสลาเทคซจากภาพเอกสารตัวอย่างที่ 4

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in

```

```

\setlength{\voffset}{-1in} % = 1 in + 0in
%Margin
\setlength{\oddsidemargin}{29.63mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{29.63mm} % = 7.75mm (22pt)
\setlength{\topmargin}{34.57mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{217.31mm} % = 201.00mm (595pt)
\setlength{\textwidth}{146.05mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{2.12mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\maketitle{
  \begin{flushleft}
    \Titletype\uppercase\expandafter{\@title}%
    \vskip 8pt
  \end{flushleft}
  \begin{flushleft}
    \Author\@author
    \vskip 8pt
  \end{flushleft}
  \normalsize\@address
  \vskip 8pt
}

```



```

\def\abstract{\@ifnextchar{\@abstract}{\@abstract{}}
\def\@abstract[#1]{%
  \Abstracotype\noindent\ignorespaces
}
\newcommand\makefigcaption{
  \begin{center}
    \vskip 4pt
    \Figcaptiontype{Fig. }\@fignum{ }
    \Figcaptiontype\@figcaption
    \vskip 4pt
  \end{center}
}
\newcommand\maketablecaption{
  \begin{flushleft}
    \vskip 4pt
    \Tablecaptiontype{Table }\@tablenum{ }
    \Tablecaptiontype\@tablecaption
    \vskip 4pt
  \end{flushleft}
}
\newcommand\section[1]{
  \begin{center}
    \Sectiontype{#1}%{ :}
  \end{center}
  \normalsize
}
\renewcommand\caption[2]{
  \vskip 4pt
  \Figcaptiontype{Fig }{#1}{ }
  \Figcaptiontype{#2}
  \vskip 4pt
}
\renewcommand\ref[2]{
  \\\
  \normalsize{#1}{.}
  \hspace{2mm}
  \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}

```

```

\def\figcaption#1{\gdef@figcaption{#1}}
\def\tablenum#1{\gdef@tablenum{#1}}
\def\tablecaption#1{\gdef@tablecaption{#1}}

%Font setting
\newcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{16pt}{18pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเทคซิกจากภาพเอกสารตัวอย่างที่ 5

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/3/3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}

%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in

%Magin
\setlength{\oddsidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\topmargin}{44.80mm} % = 7.75mm (22pt)

%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)

%Body
\setlength{\textheight}{215.55mm} % = 201.00mm (595pt)
\setlength{\textwidth}{155.93mm} % = 127.00mm (360pt)

%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)

%Paper Size

```

```

\setlength{\paperwidth}{209.90mm} %= 210mm (597pt)
\setlength{\paperheight}{297.04mm} %= 297mm (845pt)
%Column Separation
\setlength{\columnsep}{4.23mm} %=
%Paragraph Formatting
\setlength{\parindent}{0mm} %= (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\maketitle{
  \begin{flushright}
    \Titletype\uppercase\expandafter{\@title}%
    \vskip 8pt
  \end{flushright}
  \begin{flushright}
    \Authortype\@author
    \vskip 8pt
  \end{flushright}
  \normalsize\@address
  \vskip 8pt
}
\def\abstract{\@ifnextchar{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
  \Abstracttype\noindent\ignorespaces
}
\newcommand\makefigcaption{
  \begin{center}
    \vskip 4pt
    \Figcaptiontype{Fig. }\@fignum{ }
    \Figcaptiontype\@figcaption
    \vskip 4pt
  \end{center}
}
\newcommand\maketablecaption{
  \begin{flushleft}
    \vskip 4pt
    \Tablecaptiontype{Table }\@tablenum{ }
    \Tablecaptiontype\@tablecaption
  \end{flushleft}
}

```

```

        \vskip 4pt
    \end{flushleft}
}
\newcommand\section[1]{
    \begin{center}
        \Sectiontype{#1}%{ :}
    \end{center}
    \normalsize
}
\renewcommand\caption[2]{
    \vskip 4pt
    \Figcaptiontype{Fig}{#1}{ }
    \Figcaptiontype{#2}
    \vskip 4pt
}
\renewcommand\ref[2]{
    \\\
    \normalsize{#1}{.}
    \hspace{2mm}
    \normalsize{#2}
}
\def\address#1{\gdef@address{#1}}
\def\sectionname#1{\gdef@sectionname{#1}}
\def\fignum#1{\gdef@fignum{#1}}
\def\figcaption#1{\gdef@figcaption{#1}}
\def\tablename#1{\gdef@tablename{#1}}
\def\tablecaption#1{\gdef@tablecaption{#1}}
%Font setting
\renewcommand\normalsize{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand\Titletype{\fontfamily{phv}\fontseries{b}\fontsize{18pt}{20pt}\selectfont}
\newcommand\Aauthortype{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand\Aabstracttype{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand\Sectiontype{\fontfamily{ptm}\fontseries{b}\fontsize{11pt}{13pt}\selectfont}
\newcommand\Figcaptiontype{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand\Tablecaptiontype{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand\Addressstype{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand\Figfigtype{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdflex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\topmargin}{24.69mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{232.13mm} % = 201.00mm (595pt)
\setlength{\textwidth}{150.64mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{5.64mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}

```

```

\begin{center}
    \AuthorType@author
    \vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
    \AbstractType\noindent\ignorespaces
}
\newcommand\makefigcaption{
    \begin{center}
        \vskip 4pt
        \FigCaptionType{Fig. } \@fignum{ }
        \FigCaptionType\@figcaption
        \vskip 4pt
    \end{center}
}
\newcommand\maketablecaption{
    \begin{flushleft}
        \vskip 4pt
        \TableCaptionType{Table } \@tablename{ }
        \TableCaptionType\@tablecaption
        \vskip 4pt
    \end{flushleft}
}
\newcommand\section[1]{
    \begin{flushleft}
        \SectionType{#1}%{ :}
    \end{flushleft}
    \normalsize
}
\renewcommand\caption[2]{
    \vskip 4pt
    \FigCaptionType{Fig }{#1}{ }
    \FigCaptionType{#2}
    \vskip 4pt
}
\renewcommand\ref[2]{
    \vskip 4pt
}

```

```

\normalsize{#1}{.}
\hspace{2mm}
\normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{14pt}{16pt}\selectfont}
\newcommand{\Authoritytype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเทกซ์จากภาพเอกสารตัวอย่างที่ 7 .

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/3/3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdfTeX]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{34.92mm} % = 7.75mm (22pt)
\setlength{\topmargin}{44.80mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{210.96mm} % = 201.00mm (595pt)

```

```

\setlength{\textwidth}{150.64mm} %= 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} %= 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} %= 37.39mm (106pt)
\setlength{\footskip}{10mm} %= 9.525mm (27pt)
\setlength{\marginparpush}{0mm} %= 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} %= 210mm (597pt)
\setlength{\paperheight}{297.04mm} %= 297mm (845pt)
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\RequirePackage{color}
\newcommand\maketitle{
  \begin{flushleft}
    \Titletype\uppercase\expandafter{\@title}%
    \vskip 8pt
  \end{flushleft}
  \begin{flushleft}
    \Authortype\@author
    \vskip 8pt
  \end{flushleft}
  \normalsize\@address
  \vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
  \Abstracttype\noindent\ignorespaces
}
\newcommand\makefigcaption{
  \begin{center}
    \vskip 4pt
    \Figcaptiontype{Fig. }\@fignum{ }
    \Figcaptiontype\@figcaption
    \vskip 4pt
  \end{center}
}
\newcommand\maketablecaption{

```



```

\begin{flushleft}
    \vskip 4pt
    \Tablecaptiontype{Table }\@tablename{ }
    \Tablecaptiontype\@tablecaption
    \vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
    \begin{flushleft}
        \Sectiontype{#1}%{:}
    \end{flushleft}
    \normalsize
}
\renewcommand\caption[2]{
    \vskip 4pt
    \Figcaptiontype{Fig }{#1}{ }
    \Figcaptiontype{#2}
    \vskip 4pt
}
\renewcommand\ref[2]{
    \\\
    \normalsize{#1}{.}
    \hspace{2mm}
    \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablename#1{\gdef\@tablename{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{18pt}{20pt}\selectfont}
\newcommand{\Aauthor}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Address}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}

```

```
\pagestyle{empty}
```

### ไฟล์คลาสลาเทคซจากภาพเอกสารตัวอย่างที่ 8

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{24.69mm} % = 7.75mm (22pt)
\setlength{\topmargin}{24.69mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{226.84mm} % = 201.00mm (595pt)
\setlength{\textwidth}{155.93mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\RequirePackage{color}
\newcommand\maketitle{
  \begin{flushright}
    \Titletype\uppercase\expandafter{\@title}%
    \vskip 8pt
```

```

\end{flushright}
\begin{flushright}
    \Authortype\@author
    \vskip 8pt
\end{flushright}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
    \Abstracttype\noindent\ignorespaces
}
\newcommand\makefigcaption{
    \begin{center}
        \vskip 4pt
        \Figcaptiontype{Fig. }\@fignum{ }
        \Figcaptiontype\@figcaption
        \vskip 4pt
    \end{center}
}
\newcommand\maketablecaption{
    \begin{flushleft}
        \vskip 4pt
        \Tablecaptiontype{Table }\@tablenum{ }
        \Tablecaptiontype\@tablecaption
        \vskip 4pt
    \end{flushleft}
}
\newcommand\section[1]{
    \begin{center}
        \Sectiontype{#1}%{ :}
    \end{center}
    \normalsize
}
\renewcommand\caption[2]{
    \vskip 4pt
    \Figcaptiontype{Fig. }\@fignum{ }
    \Figcaptiontype{#2}
    \vskip 4pt
}
\renewcommand\ref[2]{

```

```

\
\normalize{#1}{.}
\hspace{2mm}
\normalize{#2}
}
\defaddress#1{\gdef\@address{#1}}
\defsectionname#1{\gdef\@sectionname{#1}}
\deffignum#1{\gdef\@fignum{#1}}
\deffigcaption#1{\gdef\@figcaption{#1}}
\deftablename#1{\gdef\@tablename{#1}}
\deftablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalize}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{14pt}{16pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเท็กซ์จากภาพเอกสารตัวอย่างที่ 9

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/3/3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{29.99mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{29.99mm} % = 7.75mm (22pt)
\setlength{\topmargin}{34.57mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body

```

```

\setlength{\textheight}{224.01mm} % = 201.00mm (595pt)
\setlength{\textwidth}{145.70mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\RequirePackage{color}
\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}
\begin{center}
\Author\@author
\vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Aabstracttype\noindent\ignorespaces
}
\newcommand\makefigcaption{
\begin{center}
\vskip 4pt
\Figcaptiontype{Fig. } \@fignum{ }
\Figcaptiontype\@figcaption
\vskip 4pt
\end{center}
}

```

```

\newcommand\maketablecaption{
  \begin{flushleft}
    \vskip 4pt
    \Tablecaptiontype{Table }\@tablenum{ }
    \Tablecaptiontype\@tablecaption
    \vskip 4pt
  \end{flushleft}
}
\newcommand\section[1]{
  \begin{flushleft}
    \Sectiontype{#1}%{}
  \end{flushleft}
  \normalsize
}
\renewcommand\caption[2]{
  \vskip 4pt
  \Figcaptiontype{Fig }{#1}{ }
  \Figcaptiontype{#2}
  \vskip 4pt
}
\renewcommand\ref[2]{
  \v
  \normalsize{#1}{.}
  \hspace{2mm}
  \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{phv}\fontseries{b}\fontsize{16pt}{18pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}

```

```
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}
```

## ไฟล์คลาสลาเทคซิกซ์จากภาพเอกสารของ IEEE

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{16.93mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{16.93mm} % = 7.75mm (22pt)
\setlength{\topmargin}{10.23mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{253.65mm} % = 201.00mm (595pt)
\setlength{\textwidth}{182.39mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{215.90mm} % = 210mm (597pt)
\setlength{\paperheight}{279.40mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{3.88mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
```

```

\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}
\begin{center}
\Author\@author
\vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Abstrac\type\noindent\ignorespaces
}
\newcommand\makefigcaption{
\begin{center}
\vskip 4pt
\Figcaption\type{Fig. } \@fignum{ }
\Figcaption\type\@figcaption
\vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
\begin{flushleft}
\vskip 4pt
\Tablecaption\type{Table } \@tablename{ }
\Tablecaption\type\@tablecaption
\vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
\begin{flushleft}
\Section\type{#1}\%{ :}
\end{flushleft}
\normalsize
}
\renewcommand\caption[2]{
\vskip 4pt
\Figcaption\type{Fig } {#1} { }

```



```

\Figcaptiontype{#2}
\vskip 4pt
}
\renewcommand\ref[2]{
  \\\
  \normalsize{#1}{.}
  \hspace{2mm}
  \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablename#1{\gdef\@tablename{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{ptm}\fontseries{b}\fontsize{18pt}{20pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{b}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเทคซจากภาพเอกสารของ Elsevier

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{15.17mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{15.17mm} % = 7.75mm (22pt)
\setlength{\topmargin}{31.40mm} % = 7.75mm (22pt)

```

```

%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{236.71mm} % = 201.00mm (595pt)
\setlength{\textwidth}{177.45mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{209.90mm} % = 210mm (597pt)
\setlength{\paperheight}{297.04mm} % = 297mm (845pt)
%Column Separation
\setlength{\columnsep}{8.47mm} % =
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}
%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\@twocolumntrue %Make Twocolumn
\RequirePackage{color}
\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}
\begin{center}
\Authortype\@author
\vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar[{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Aabstracttype\noindent\ignorespaces
}
\newcommand\makefigcaption{

```

```

\begin{center}
    \vskip 4pt
    \Figcaptiontype{Fig. }\@fignum{ }
    \Figcaptiontype\@figcaption
    \vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
    \begin{flushleft}
        \vskip 4pt
        \Tablecaptiontype{Table }\@tablenum{ }
        \Tablecaptiontype\@tablecaption
        \vskip 4pt
    \end{flushleft}
}
\newcommand\section[1]{
    \begin{flushleft}
        \Sectiontype{#1}%{ :}
    \end{flushleft}
    \normalsize
}
\renewcommand\caption[2]{
    \vskip 4pt
    \Figcaptiontype{Fig }{#1}{ }
    \Figcaptiontype{#2}
    \vskip 4pt
}
\renewcommand\ref[2]{
    \\\
    \normalsize {#1} {.}
    \hspace{2mm}
    \normalsize {#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}

```

```

\newcommand{\Titletype} {\fontfamily{ptm}\fontseries{b}\fontsize{16pt}{18pt}\selectfont}
\newcommand{\Authortype} {\fontfamily{ptm}\fontseries{m}\fontsize{14pt}{16pt}\selectfont}
\newcommand{\Abstracttype} {\fontfamily{ptm}\fontseries{b}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Sectiontype} {\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Figcaptiontype} {\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype} {\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addressstype} {\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype} {\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

### ไฟล์คลาสลาเทคซจากภาพเอกสารของ SPIE

```

\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{AutomateClass}[2007/ 3/ 3 Result class]
\usepackage[frenchb]{babel}
\usepackage[pdftex]{color,graphicx}
%Page Layout setting
%Top & Side
\setlength{\hoffset}{-1in} % = 1 in + 0in
\setlength{\voffset}{-1in} % = 1 in + 0in
%Magin
\setlength{\oddsidemargin}{22.22mm} % = 7.75mm (22pt)
\setlength{\evensidemargin}{22.22mm} % = 7.75mm (22pt)
\setlength{\topmargin}{26.46mm} % = 7.75mm (22pt)
%Header
\setlength{\headheight}{0mm} % = 4.25mm (12pt)
\setlength{\headsep}{0mm} % = 6.70mm (19pt)
%Body
\setlength{\textheight}{220.13mm} % = 201.00mm (595pt)
\setlength{\textwidth}{170.39mm} % = 127.00mm (360pt)
%Side
\setlength{\marginparsep}{0mm} % = 2.46mm (7pt)
\setlength{\marginparwidth}{0mm} % = 37.39mm (106pt)
\setlength{\footskip}{10mm} % = 9.525mm (27pt)
\setlength{\marginparpush}{0mm} % = 1.75mm (5pt)
%Paper Size
\setlength{\paperwidth}{215.90mm} % = 210mm (597pt)
\setlength{\paperheight}{279.40mm} % = 297mm (845pt)
%Paragraph Formatting
\setlength{\parindent}{0mm} % = (1pc)
\setlength{\parskip}{6pt} % {1ex plus 0.5ex minus 0.2ex}

```

```

%Line Space
\linespread{1} %Use {1.3} for _one and a half_, {1.6} for _double_
\setlength{\baselineskip}{1.5\baselineskip}
\RequirePackage{color}
\newcommand\maketitle{
\begin{center}
\Titletype\uppercase\expandafter{\@title}%
\vskip 8pt
\end{center}
\begin{center}
\Authortype\@author
\vskip 8pt
\end{center}
\normalsize\@address
\vskip 8pt
}
\def\abstract{\@ifnextchar{\@abstract}{\@abstract[]}}
\def\@abstract[#1]{%
\Abstracotype\noindent\ignorespaces
}
\newcommand\makefigcaption{
\begin{center}
\vskip 4pt
\Figcaptiontype{Fig. }\@fignum{ }
\Figcaptiontype\@figcaption
\vskip 4pt
\end{center}
}
\newcommand\maketablecaption{
\begin{flushleft}
\vskip 4pt
\Tablecaptiontype{Table }\@tablenum{ }
\Tablecaptiontype\@tablecaption
\vskip 4pt
\end{flushleft}
}
\newcommand\section[1]{
\begin{center}
\Sectiontype{#1}%{ :}
\end{center}
\normalsize
}

```

```

}
\renewcommand\caption[2]{
  \vskip 4pt
  \Figcaptiontype{Fig}{#1}{ }
  \Figcaptiontype{#2}
  \vskip 4pt
}
\renewcommand\ref[2]{
  \\\
  \normalsize{#1}{.}
  \hspace{2mm}
  \normalsize{#2}
}
\def\address#1{\gdef\@address{#1}}
\def\sectionname#1{\gdef\@sectionname{#1}}
\def\fignum#1{\gdef\@fignum{#1}}
\def\figcaption#1{\gdef\@figcaption{#1}}
\def\tablenum#1{\gdef\@tablenum{#1}}
\def\tablecaption#1{\gdef\@tablecaption{#1}}
%Font setting
\renewcommand{\normalsize}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Titletype}{\fontfamily{ptm}\fontseries{b}\fontsize{14pt}{16pt}\selectfont}
\newcommand{\Authortype}{\fontfamily{ptm}\fontseries{m}\fontsize{12pt}{14pt}\selectfont}
\newcommand{\Abstracttype}{\fontfamily{ptm}\fontseries{m}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Sectiontype}{\fontfamily{ptm}\fontseries{b}\fontsize{11pt}{13pt}\selectfont}
\newcommand{\Figcaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Tablecaptiontype}{\fontfamily{ptm}\fontseries{m}\fontsize{8pt}{10pt}\selectfont}
\newcommand{\Addresstype}{\fontfamily{ptm}\fontseries{m}\fontsize{10pt}{12pt}\selectfont}
\newcommand{\Figfigtype}{\fontfamily{ptm}\fontseries{b}\fontshape{it}\fontsize{10pt}{12pt}\selectfont}
\pagestyle{empty}

```

**ภาคผนวก ก.**

เอกสารที่ผลิตได้จากภาพเอกสารต้นฉบับที่สร้างขึ้น

ตัวอย่างที่ 1

ตัวอย่างที่ 2

ตัวอย่างที่ 3

ตัวอย่างที่ 4

ตัวอย่างที่ 5

ตัวอย่างที่ 6

ตัวอย่างที่ 7

ตัวอย่างที่ 8

ตัวอย่างที่ 9

เอกสารที่ผลิตได้จากภาพเอกสารต้นฉบับที่มีการใช้งานจริง

IEEE

Elsevier

SPIE

# AUTOMATED LATEX-CLASS CONFIGURATION FROM DOCUMENT IMAGE

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Faculty of Science, Chulalongkorn University, Bangkok, Thailand  
e-mail : kingkarn.s@chula.ac.th)

This paper has been achieved to develop software for automatically generating a LaTeX-class file from a document image. LaTeX is widely used to produce high-quality books, which it can provide the same results in all systems. LaTeX has been written to extend the power of TeX typesetting system by collecting TeX commands, called LaTeX-class file. Basically, the LaTeX-class files are a sort of complicated programs. Automated LaTeX-class configuration for publishing was investigated in this research. The experiments were designed to test against document images of three well-known academic publishers and nine synthesized document images. Parameters of the page layout are carried out from document images as well as parameters of fonts are defined by users.

## Introduction

TeX is a powerful typesetting system to provide the exact same results on all computer platforms. Its aim to be a powerful text processing language, which users put a reasonable effort to produce high-quality books. TeX has many macros to which you can eventually add your own. LaTeX is a macro package which sits on top of TeX and provides all the structuring facilities to help with writing large documents. For example, automated chapter and section macros are provided, together with cross referencing and bibliography macros. The document format is controlled by a LaTeX-class file. Basically, LaTeX-class files have been provided by publishers such as Springer Verlag, Elsevier, and IEEE.

LaTeX has been used in academia, especially in the mathematics, physics, computer science, and economics. LaTeX users can perceive clearly what the produced work looks like although LaTeX is not a WYSIWYG text processing, i.e., MS WORD. The LaTeX-class file plays a key role for format configuration.

Therefore, this paper aims to develop a software to generate automatically a LaTeX-class file from document images. Section 2 describes the related image processing methods for image enhancement and document analysis. Section 3 analyze the document's parameters corresponding to page format. The proposed algorithm to calculate these parameters are explained in Section 3. Section 4 presents the experiments and their results. The experiments are designed to test against the document images

generating from the LaTeX-class files of four publishers, i.e. IEEE, Springer Verlag, SPIE, and Elsevier. Nine testing samples of different format and style are also synthesized. Section 5 concludes the paper and discusses the results.

## Conclusion

The software for automated LaTeX-class configuration from document images has been achieved by the proposed processing model. For document analysis, our experimental results show that the average errors of text height, text width, top margin, and left margin are 0.44%, 1.56%, 2.83%, and 2.69%, respectively. However, the other parameters such as font size, font style, abstract style, and figure/table format are user-defined by GUI of the software.



# AUTOMATED LATEX-CLASS CONFIGURATION FROM DOCUMENT IMAGE

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Faculty of Science, Chulalongkorn University, Bangkok, Thailand  
e-mail : kingkarn.s@chula.ac.th)

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นายจุฬพงษ์ พานิชเกรียงไกร เกิดวันที่ 3 มีนาคม 2526 ที่จังหวัดกรุงเทพมหานคร จบการศึกษาระดับมัธยมศึกษาตอนปลาย จากโรงเรียนสารคดีจุฬาลงกรณ์มหาวิทยาลัย ฝ่ายมัธยม เมื่อปี พ.ศ. 2544 จบการศึกษาวิทยาศาสตร์บัณฑิต สาขาเทคโนโลยีทางภาพและการพิมพ์ จากภาควิชาวิทยาศาสตร์ทางภาพถ่ายและเทคโนโลยีทางการพิมพ์ คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย เมื่อปี พ.ศ. 2548 หลังจากจบการศึกษาแล้วก็เข้าศึกษาต่อในระดับปริญญาโทบัณฑิต สาขาเทคโนโลยีทางภาพ ภาควิชาวิทยาศาสตร์ทางภาพถ่ายและเทคโนโลยีทางการพิมพ์ คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัยในปีการศึกษา 2548