

The `eukdate` package*

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1 Introduction

`\today` This package redefines `\today`, to typeset `\today`'s date in, for example the format *Day, Date Month Year* (here, called 'UK format'), 'Monday, 7 July 2008' as is preferred in many parts of the world outside the US. Thus, `\maketitle` uses the UK format (instead of the default US format, 'July 7, 2008' as used in the `article` class).

This package also determines `\today`'s day of the week, which still makes the package useful even to Americans who might use the `usdate` option. The day of the week is calculated according to Zeller's congruence:

$$w = \begin{cases} d + \lfloor \frac{26}{10}(m+1) \rfloor + y + \lfloor \frac{y}{4} \rfloor + \lfloor \frac{c}{4} \rfloor - 2c \pmod{7} & \text{Gregorian calendar} \\ d + \lfloor \frac{26}{10}(m+1) \rfloor + y + \lfloor \frac{y}{4} \rfloor + 5 - c \pmod{7} & \text{Julian calendar} \end{cases}$$

where d is the day of the month, m is the number of the month, y is the two digit year, c is the century (so the year is given by $100c + y$) and w represents the day of the week (0 for Saturday through to 6 for Friday); January and February are counted as months 13 and 14 of the previous year.

The ordinal indicator of the date (in e.g. 7th, 7th) is absent because its use is outdated.

2 Usage

`\weekday` The package is invoked with `\usepackage{eukdate}`. This package also defines `\weekday` to typeset `\today`'s day of the week and `\monthname` to typeset the name of `\today`'s month ('Monday' and 'July' when this document was typeset).

2.1 Options

no-weekday Suppresses the weekday when typesetting `\today`, for example, '7 July 2008'. `\weekday` is still defined and can be used in the document.

*This document corresponds to `eukdate` v1.02, dated 2008/07/07.

ukdate Typesets `\today` in UK format, ‘Monday, 7 July 2008’. This option is applied by default, if the `usdate` option is not specified.

usdate Typesets `\today` in US format, ‘Monday, July 7, 2008’.

gregorian Calculates the day of the week according to the Gregorian calendar, which is the calendar that is socially used today. This option is applied by default, if the `julian` option is not specified.

julian Calculates the day of the week according to the Julian calendar. However, since `\today`’s date is not *today*’s date, as interpreted using the Julian calendar, this option is of limited use and can be safely ignored for every day use.

3 eukdate.sty

```

1 \newif\if@euk@noweekday
2 \newif\if@euk@usdate
3 \newif\if@euk@julian
4 \DeclareOption{no-weekday}{\@euk@noweekdaytrue}
5 \DeclareOption{ukdate}{\@euk@usdatefalse}
6 \DeclareOption{usdate}{\@euk@usdatetrue}
7 \DeclareOption{gregorian}{\@euk@julianfalse}
8 \DeclareOption{julian}{\@euk@juliantrue}
9 \ExecuteOptions{ukdate,gregorian}
10 \ProcessOptions\relax

```

3.1 Zeller’s congruence

Actually, the equivalent congruence:

$$w = \begin{cases} d + \lfloor \frac{26}{10} (m + 1) \rfloor + y + \lfloor \frac{y}{4} \rfloor + \lfloor \frac{c}{4} \rfloor + 5c & \text{mod } 7 \quad \text{Gregorian calendar} \\ d + \lfloor \frac{26}{10} (m + 1) \rfloor + y + \lfloor \frac{y}{4} \rfloor + 5 + 6c & \text{mod } 7 \quad \text{Julian calendar} \end{cases}$$

is used instead of Zeller’s, as claimed, to simplify the algorithm for the modulo operation.

```

11 \newcounter{euk@date}
12 \newcounter{euk@month}
13 \newcounter{euk@century}
14 \newcounter{euk@year}
15 \setcounter{euk@date}{\number\day}
16 \setcounter{euk@month}{\number\month}
17 \setcounter{euk@century}{\number\year}
18 \divide\c@euk@century by 100
19 \setcounter{euk@year}{\number\year}
20 \addtocounter{euk@year}{-\theeuk@century00}
21 \ifnum\number\theeuk@month<3
22   \addtocounter{euk@month}{13}
23   \addtocounter{euk@year}{-1}

```

```

24 \else
25   \addtocounter{euk@month}{1}
26 \fi
27 \multiply\c@euk@month by 26
28 \divide\c@euk@month by 10
29 \addtocounter{euk@date}{\theeuk@month}
30 \addtocounter{euk@date}{\theeuk@year}
31 \divide\c@euk@year by 4
32 \addtocounter{euk@date}{\theeuk@year}
33 \if@euk@julian
34   \addtocounter{euk@date}{6\theeuk@century}
35   \addtocounter{euk@date}{5}
36 \else
37   \addtocounter{euk@date}{5\theeuk@century}
38   \divide\c@euk@century by 4
39   \addtocounter{euk@date}{\theeuk@century}
40 \fi
The modulo operation.
41 \loop\ifnum6<\theeuk@date
42   \addtocounter{euk@date}{-7}
43 \repeat

```

3.2 Definitions

`\weekday` Define `\weekday` to typeset the day of the week.

```

44 \newcommand\weekday{%
45   \ifcase\theeuk@date Saturday\or Sunday\or Monday\or%
46     Tuesday\or Wednesday\or Thursday\or Friday\fi}

```

`\monthname` Define `\monthname` to typeset the month.

```

47 \newcommand\monthname{%
48   \ifcase\number\month\or January\or February\or March\or%
49     April\or May\or June\or July\or August\or%
50     September\or October\or November\or December\fi}

```

`\today` Redefine `\today`.

```

51 \def\today{%
52   \if@euk@noweekday\else\weekday,\space\fi%
53   \if@euk@usdate
54     \monthname\space\number\day,%
55   \else
56     \number\day\space\monthname%
57   \fi
58   \space\number\year}

```

An ‘undocumented’ feature.

```

59 \edef\euk@ordinal{%
60   \ifcase\number\day\or st\or nd\or rd\or th\or th\or%

```

```
61      th\or th\or th\or th\or th\or th\or th\or th\or th\or%
62      th\or th\or th\or th\or th\or th\or st\or nd\or rd\or%
63      th\or th\or th\or th\or th\or th\or th\or st\fi}
```