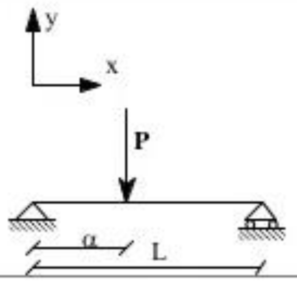
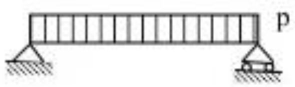
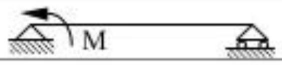
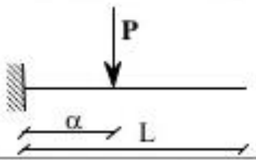
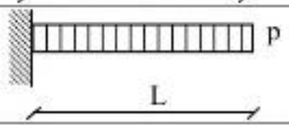
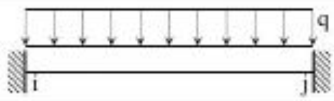
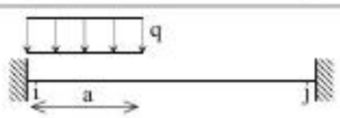
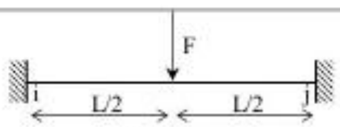
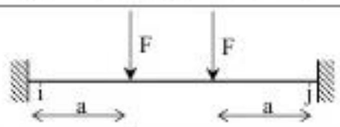
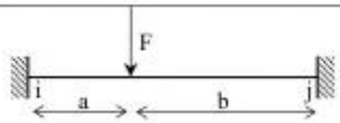
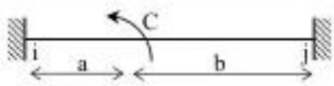
Annexe 2

Formulaire de résistance des matériaux :
Sollicitation de flexion : flèche

7. Formulaire de flèches de poutres isostatiques

	$0 \le x \le \alpha$: $y(x) = \frac{P(L-\alpha)}{6EIL}[x^3 - \alpha(2L-\alpha)x]$ $\quad y'(x) = \frac{P(L-\alpha)}{6EIL}[3x^2 - \alpha(2L-\alpha)]$ $\alpha \le x \le L$: $y(x) = \frac{P\alpha}{6EIL}[(L-x)^3 - (L-\alpha)(L+\alpha)(L-x)]$ $y'(x) = \frac{P\alpha}{6EIL}[-3(L-x)^2 + (L-\alpha)(L+\alpha)]$ $y(\alpha) = -\frac{P\alpha^2(L-\alpha)^2}{3EIL}$ pour $x=\alpha$ $y(\frac{L}{2}) = -\frac{PL^3}{48EI}$ pour $x=\alpha=\frac{L}{2}$
	$y(x) = -\frac{p}{24EI}(x^4 - 2Lx^3 + L^3x)$ $\quad y'(x) = -\frac{p}{24EI}(4x^3 - 6Lx^2 + L^3)$ $y(\frac{L}{2}) = -\frac{5pL^4}{384EI}$ pour $x=\frac{L}{2}$
	$y(x) = \frac{M}{6EIL}(x^3 - 3Lx^2 + 2L^2x)$ $\quad y'(x) = \frac{M}{6EIL}(3x^2 - 6Lx + 2L^2)$
	$0 \le x \le \alpha$: $y(x) = \frac{Px^2(x-3\alpha)}{6EI}$ $\quad y'(x) = \frac{Px(x-2\alpha)}{2EI}$ $\alpha \le x \le L$: $y(x) = \frac{P\alpha^2(\alpha-3x)}{6EI}$ $y(L) = -\frac{PL^3}{3EI}$ pour $x=\alpha=L$
	$y(x) = -\frac{p}{24EI}(x^4 - 4Lx^3 + 6L^2x^2)$ $\quad y'(x) = -\frac{p}{6EI}(x^3 - 3Lx^2 + 3L^2x)$ $y(L) = -\frac{pL^4}{8EI}$ pour $x=L$

8. Formulaire des réactions de liaison de la poutre bi-encastrée

	$T_{ij}^0 = \frac{qL}{2}$; $T_{ji}^0 = \frac{qL}{2}$; $M_{ij}^0 = \frac{qL^2}{12}$; $M_{ji}^0 = \frac{-qL^2}{12}$
	$T_{ij}^0 = \frac{qa^3}{L^2}(1 - \frac{a}{2L})$; $T_{ji}^0 = qa(1 - \frac{a^2}{L^2} + \frac{a^3}{2L^3})$ $M_{ij}^0 = \frac{qa^2}{12L^2}(6L^2 - 8aL + 3a^2)$; $M_{ji}^0 = \frac{-qa^3}{12L^2}(4L - 3a)$
	$T_{ij}^0 = \frac{F}{2}$; $T_{ji}^0 = \frac{F}{2}$; $M_{ij}^0 = \frac{FL}{8}$; $M_{ji}^0 = \frac{-FL}{8}$
	$T_{ij}^0 = F$; $T_{ji}^0 = F$; $M_{ij}^0 = \frac{Fa(L-a)}{L}$; $M_{ji}^0 = \frac{-Fa(L-a)}{L}$
	$T_{ij}^0 = \frac{Fb^2}{L^3}(b+3a)$; $T_{ji}^0 = \frac{Fa^2}{L^3}(3b+a)$; $M_{ij}^0 = \frac{Fab^2}{L^2}$; $M_{ji}^0 = \frac{-Fba^2}{L^2}$
	$T_{ij}^0 = \frac{6abC}{L^3}$; $T_{ji}^0 = \frac{-6abC}{L^3}$; $M_{ij}^0 = \frac{b(2a-b)}{L^2}C$; $M_{ji}^0 = \frac{a(2b-a)}{L^2}C$