

MTA Course Planner - v2 : for 1 track

- Advanced required.

$$X_{CSE6292} = 1$$

$$X_{MGT6203} = 1$$

$$X_{CSE6748} + X_{ISYE6748} + X_{MGT6748} = 1$$

- Waivable course:

$$reg1 = (1 - W_C) X_{CSE6040} + W_C (X_{CSE6040} + \sum_{\bar{a}} X_{\bar{a}}) = 1, \forall \bar{a} \in \text{Elective } A, B, C, D, S$$

where $W_C = 0$: not waive CSE6040

$W_C = 1$: waived CSE6040.

$$reg2 = (1 - W_S) X_{ISYE6501} + W_S (X_{ISYE6501} + \sum_{\bar{a}} X_{\bar{a}}) = 1, \forall \bar{a} \in \text{Elective } A, B, C, D, S$$

where $W_S = 0$: not waive ISYE6501

$W_S = 1$: waived ISYE6501.

$$reg3 = (1 - W_B) (X_{MGT8803} + X_{MGT6753}) + W_B (X_{MGT8803} + X_{MGT6753} + \sum_{\bar{a}} X_{\bar{a}}) = 1,$$

$\forall \bar{a} \in \text{Elective } A, B, C, D, S$

where $W_B = 0$: not waive

MGT 8803 / 6753

$W_B = 1$: waived ↗

- Elective.

C-track

$$reg4 = X_{CSE6740} + X_{CS7641} + X_{ISYE6740} = 1$$

$$reg5 = \sum_{\bar{a}} X_{\bar{a}} = 1, \forall \bar{a} \in \text{Elective } D$$

$$reg6 = \sum_{\bar{a}} X_{\bar{a}} + \sum_j X_j \geq 3, \forall \bar{a} \in \text{Elective } C, \forall j \in \text{Elective } S.$$

$$reg7 = \sum_{\bar{a}} X_{\bar{a}} \geq 1, \forall \bar{a} \in \text{Elective } C$$

$$reg8 = \sum_{\bar{a}} X_{\bar{a}} \geq 1, \forall \bar{a} \in \text{Elective } S.$$

B-track

$$\text{reg9} = \sum_{\bar{a}}^0 x_{\bar{a}} = 1, \forall \bar{a} \in \text{Elective } 0$$

$$\text{reg10} = \sum_{\bar{a}}^S x_{\bar{a}} \geq 2, \forall \bar{a} \in \text{Elective } S$$

$$\text{reg11} = \sum_{\bar{a}}^B x_{\bar{a}} \geq 2, \forall \bar{a} \in \text{Elective } B$$

A-track

$$\text{reg12} = \sum_{\bar{a}}^0 x_{\bar{a}} + \sum_{\bar{j}}^S x_{\bar{j}} \geq 5, \forall \bar{a} \in \text{Elective } 0, \forall \bar{j} \in \text{Elective } S.$$

$$\text{reg13} = \sum_{\bar{a}}^0 x_{\bar{a}} \geq 1, \forall \bar{a} \in \text{Elective } 0.$$

$$\text{reg14} = \sum_{\bar{a}}^S x_{\bar{a}} \geq 1, \forall \bar{a} \in \text{Elective } S$$

For multiple tracks,

$$z_{\bar{a}j} = \begin{cases} = 1, & \text{if course } \bar{a} \text{ is used for reg } j, \forall j \in \{1, 14\} \\ = 0, & \text{if not} \end{cases}$$

$$\sum_{j=1}^{14} z_{\bar{a}j} \leq 1, \forall \bar{a} \in \{\text{Elective } A, B, C, 0, S\} \setminus \{CSE6740, ISyE6740, CS7641\}$$

$$z_{\bar{a}4} + z_{\bar{a}10} + z_{\bar{a}12} \leq 3, \forall \bar{a} \in \{CSE6740, ISyE6740, CS7641\}$$

if $w_0 = 1$:

$$z_{\bar{a}1} + z_{\bar{a}6} \leq 2, \forall \bar{a} \in \text{Elective } C$$

$$z_{\bar{a}1} + z_{\bar{a}5} + z_{\bar{a}9} + z_{\bar{a}12} \leq 4, \forall \bar{a} \in \text{Elective } 0$$

$$z_{\bar{a}1} + z_{\bar{a}6} + z_{\bar{a}10} + z_{\bar{a}12} \leq 4, \forall \bar{a} \in \text{Elective } S$$

$$z_{\bar{a}1} + z_{\bar{a}11} \leq 2, \forall \bar{a} \in \text{Elective } B$$

if $w_S = 1$: replace $z_{\bar{a}1}$ with $z_{\bar{a}2}$

$w_B = 1$: replace $z_{\bar{a}1}$ with $z_{\bar{a}3}$.