Exam Scheduler Model

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May 30, 2017

0.1 Ready Tables

- **Conf** [**C**][**C**] $=$

number of common students between class i, j	if $i \neq j$
0	if $i = j$

0.2 Variable Tables

- **SD** [**C**][**C**] $=$

1	being in same day for $i \neq j$
0	not being in same day

- **FS** [**C**][**C**] $=$

1	being in contingents days for $i \neq j$
0	not being in contingents day

- **CT** [**C**][**T**] $=$

1	if Course c_1 is decided to be in time $t1$
0	if Course c_1 is decided not to be in time $t1$

0.3 Model

0.3.1 Objective

Min: $\Sigma_{c_1}^{C}\Sigma_{c_2}^{C} SD[c_1][c_2] \times BIGM9 \times conf[c_1][c_2] + \Sigma_{c_1}^{C}\Sigma_{c_2}^{C} FD[c_1][c_2] \times BIGM6 \times conf[c_1][c_2]$

0.3.2 Constraints

- $\forall C \;\; \Sigma_t^T CT_{ct} = 1$
- $\forall c_1, c_2, T$ if c_1, c_2 has conflicts $CT_{c_1 t} + CT_{c_2 t} \leq 1$
- $\forall c_1, c_2, t_1, t_2$ if c_1, c_2 has conflicts and t_1, t_2 are contingents times

$$CT_{c_1 t_1} + CT_{c_2 t_2} \leq 1$$
$$CT_{c_2 t_1} + CT_{c_1 t_2} \leq 1$$

- $\forall c_1, c_2, t_1, t_2$ if c_1, c_2 has conflicts and t_1, t_2 are in same day

$$CT_{c_1 t_1} + CT_{c_2 t_2} \leq 1 + SD[c_1][c_2]$$
$$CT_{c_1 t_2} + CT_{c_2 t_1} \leq 1 + SD[c_1][c_2]$$

- $\forall c_1, c_2, t_1, t_2$ if c_1, c_2 has conflicts and t_1, t_2 are contingents days

$$CT_{c_1 t_1} + CT_{c_2 t_2} \leq 1 + FD[c_1][c_2]$$
$$CT_{c_2 t_1} + CT_{c_1 t_2} \leq 1 + FD[c_1][c_2]$$