

[*STUDENT*, *MODULE*]

$prereq : MODULE \leftrightarrow MODULE$
$prereq^+ \cap id\ MODULE = \emptyset$

$Enrolled$ $enrolled : \mathbb{F}\ STUDENT$ $module : \mathbb{F}\ MODULE$ $registered : STUDENT \leftrightarrow MODULE$
$registered \in enrolled \leftrightarrow module$

$EnrolledP$ $Enrolled$ $passed : STUDENT \leftrightarrow MODULE$
$passed \subseteq registered$ $\forall r : registered \bullet \{first\ r\} \times prereq\ (\{second\ r\}) \subseteq passed$

$Enrol$ $\Delta Enrolled$ $e? : STUDENT$
$e? \notin enrolled$ $enrolled' = enrolled \cup \{e?\}$ $module' = module$ $registered' = registered$

$Register$ $\Delta Enrolled$ $e? : STUDENT$ $m? : MODULE$
$e? \in enrolled$ $m? \in module \setminus registered\ (\{e?\})$ $enrolled' = enrolled$ $module' = module$ $registered' = registered \cup \{e? \mapsto m?\}$

$RegisterP$ $\Delta EnrolledP$ $Register$
$passed' = passed$

$Deregister$ $\Delta Enrolled$ $e? : STUDENT$ $m? : MODULE$
$e? \in enrolled$ $m? \in registered\ (\{e?\})$ $registered' = registered \setminus \{e? \mapsto m?\}$

*Transfer*

$\Delta Enrolled$

$e? : STUDENT$

$from? : MODULE$

$to? : MODULE$

$e? \mapsto from? \in registered$

$to? \in module \setminus \{from?\}$

$e? \mapsto to? \notin registered$

$registered' = registered \setminus \{e? \mapsto from?\} \cup \{e? \mapsto to?\}$

$enrolled' = enrolled$

$module' = module$