
MODULE *HourClock*

EXTENDS *Naturals*
VARIABLE *hr*

$HCini \triangleq hr \in (0 \dots 23)$
 $HCnext \triangleq hr' = \text{IF } hr = 23 \text{ THEN } 0 \text{ ELSE } hr + 1$
 $HCsafe \triangleq HCini \wedge \Box[HCnext]_{hr}$
 $HC \triangleq HCsafe \wedge \text{WF}_{hr}(HCnext)$

$CourseEnds \triangleq \Diamond(hr = 10)$
 $HClive \triangleq \forall h \in 0 \dots 23 : \Box\Diamond(hr = h)$

THEOREM $HCsafe \Rightarrow \Box HCini$
THEOREM $HC \Rightarrow HClive$
