Precision Works operates a machine shop where they make several different parts that are used in medical equipment. Their aggregate demand forecast is given below:

Month	Demand
April	6000
May	8000
June	10000
July	12000
August	11000
September	9000

All demand must be met and backordering is not allowed. Inventory can be kept at a rate of $40 per part per month, but currently there is no inventory on hand. Because of the specialized equipment used to make the parts, Precision Works does not have the option to subcontract.

In the aggregate, each part requires 2.5 hours of labor to produce. Precision Works currently employs 110 workers. Each worker can work up to 160 hours per month at a rate of $40 per hour. Any additional hours are charged at a rate of $55 per hour. Note that the workers **are only paid for the hours they actually work**, even if it is less than 160 per month.

Precision Works can hire additional workers. The training cost is $5000 per worker. In order to receive tax incentives from the state for providing such high paying jobs, Precision Works has agreed not to make any layoffs over the next year.

Determine the optimal plan to meet the demand for machined parts over the next six months while minimizing the cost.