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Cost Minimization of an Academic Advisory Business through Linear Programming

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Abstract: The main objective of this research is to minimize the costs of a company that offers academic advisory services in order to increase its profits. First, the current state of the business was analyzed, as well as the service process, the operation cost, the key business indicators and the administrative management using various tools. A linear model was constructed considering the parameters of number of customers according to the different types of services such as regular courses, courses for third examination opportunity and online courses. The objective function minimizes variable costs by type of service. The constraints were established in order that monthly fixed costs were covered without reducing profit margins by type of service, in addition the following restrictions must be met: a minimum number of customers undergoing third examination opportunity, a maximum number of customers enrolled in the online course, a minimum proportion of customers enrolled in the online course, a monthly minimum total income, a maximum proportion of customers enrolled in the online course compared to the other courses and a minimum total amount of customers. Fixed and variable costs were improved before modeling, since they accounted for about 63% of income, falling to only 58%. Taking into account the restrictions, the number of customers needed to achieve the best business profit is to offer 84 places in regular course, 30 in the third examination opportunity course and 36 in the online course. The results obtained from the model solution show that business profits increased 16% with respect to the initial business status and total costs were reduced by 8%.

Keywords: Linear Programming, Cost Minimization, Services, Profit Increase