I. Project Title: Edge-primality of some bipartite graphs

II. Supervisor: Dr. Shiu Wai Chee

III. Remark: Students who has taken Abstract Algebra, Number theory and/or Graph Theory will be better.

IV. Project Description: Let $G = (V, E)$ be a $(p, q)$-graph. A bijection $f : E \rightarrow \{1, 2, 3, \ldots, q\}$ is called an edge-prime labeling if for each edge $uv$ in $E$, we have $GCD(f^+(u), f^+(v)) = 1$ where $f^+(u) = \sum_{uw \in E} f(uw)$. Moreover, a bijection $f : E \rightarrow \{1, 2, 3, \ldots, q\}$ is called a semi-edge-prime labeling if for each edge $uv$ in $E$, we have $GCD(f^+(u), f^+(v)) = 1$ or $f^+(u) = f^+(v)$. A graph that admits an edge-prime (or a semi-edge-prime) labeling is called an edge-prime (or a semi-edge-prime) graph. In this project we want to determine the necessary and/or sufficient condition for the existence of (semi-) edge-primality of some bipartite graphs.

Key Reference:

