| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| --- | --- | --- | --- |
| **for all courses** | 1 | n | n |
| **if the course is the same as courseNumber** | 1 | n | n |
| **for each prerequisite of the course** | 1 | 1 | 1 |
| **for each prerequisite of the course (if found)** | 1 | n | n |
| **print the prerequisite course information** | 1 | n | n |
| **Total Cost** | | | 4n + 1 |
| **Runtime** | | | O(n) |

**Vector Runtime Analysis**

**Hash Table Runtime Analysis**

| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| --- | --- | --- | --- |
| **check if courseNumber exists in hash table** | 1 | 1 | 1 |
| **retrieve course object from hash table** | 1 | 1 | 1 |
| **for each prerequisite of the course** | 1 | 1 | 1 |
| **print the prerequisite course information** | 1 | n | n |
| **Total Cost** | | | n + 3 |
| **Runtime** | | | O(n) |

| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| --- | --- | --- | --- |
| **search for courseNumber in BST (log n)** | 1 | log n | log n |
| **if courseNumber is found** | 1 | log n | log n |
| **for each prerequisite of the course** | 1 | 1 | 1 |
| **print the prerequisite course information** | 1 | n | n |
| **Total Cost** | | | n + 2 log n + 1 |
| **Runtime** | | | O(n + log n) |

**Binary Search Tree Runtime Analysis**