**Test Case Generation:**

1: Equivalence Class Partitioning

2: Boundary Value Analysis

3: Cause Effect Graphing

**Equivalence Class Partitioning of Departments:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Equivalence Class** | **Test Domain** | **Valid Test Data** | **Invalid Test Data** |
| EC1 | Computer Science | 0801cs141001, 0801cs141011, 0801cs141034, 0801cs141060 | 0801ec141045, 0801ee141011 |
| EC2 | Electronics And Telecommunication | 0801ec141001, 0801ec141045, 0801ec141023, 0801ec141067 | 0801cs141011,  0801bm141011 |
| EC3 | Electrical | 0801ee141009, 0801ee141011, 0801ee141049, 0801ee141086 | 0801me141007, 0801ip141066 |
| EC4 | Mechanical | 0801me141001,0801me141007, 0801me141033,0801me141007 | 0801it141041,  0801bm141011 |
| EC5 | Biomedical | 0801bm141051,0801bm141011, 0801bm141044,0801bm141001 | 0801ec141045,  0801cs141001 |
| EC6 | Industrial Production | 0801ip141001, 0801ip141066, 0801ip141034, 0801ip141087 | 0801ce141011,  0801ee141049 |
| EC7 | Civil | 0801ce141001, 0801ce141011, 0801ce141034, 0801ce141060 | 0801ip141087,  0801bm141001 |
| EC8 | Information Technology | 0801it141004, 0801it141041, 0801it141037, 0801it141060 | 0801ei141069, 0801ip141087 |
| EC9 | Electronics and Instrumentation | 0801ei141007, 0801ei141001, 0801ei141038, 0801ei141069 | 0801cs141001,  0801ee141049 |

**Equivalence Class Partitioning of Students:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Equivalence Class** | **Test Domain** | **Test Data** | **Invalid test Data** |
| EC1 | First Year | 0801cs141001,0801me141001, 0801ec141034, 0801ce141060 | 0801it131001,  0801cs121060 |
| EC2 | Second Year | 0801it131001, 0801ec131011, 0801bm131034, 0801ei131060 | 0801ec141034,  0801ec111034 |
| EC3 | Third Year | 0801ee121001, 0801ip121011, 0801ei121034, 0801cs121060 | 0801ee131011,  0801cs111011 |
| EC4 | Fourth Year | 0801ei111001,0801cs111011, 0801ec111034,0801me111060 | 0801cs141001,  0801bm131034 |

**Boundary Value analysis Of Departments:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Equivalence Class** | **Test Domain** | **Valid Test Data** | **Invalid Test Data** |
| EC1 | Computer Science | 0801cs141001, 0801cs141011, 0801cs141034, 0801cs141060 | 0801ec141045, 0801ee141011 |
| EC2 | Electronics And Telecommunication | 0801ec141001, 0801ec141045, 0801ec141023, 0801ec141067 | 0801cs141011,  0801bm141011 |
| EC3 | Electrical | 0801ee141009, 0801ee141011, 0801ee141049, 0801ee141086 | 0801me141007, 0801ip141066 |
| EC4 | Mechanical | 0801me141001,0801me141007, 0801me141033,0801me141007 | 0801it141041,  0801bm141011 |
| EC5 | Biomedical | 0801bm141051,0801bm141011, 0801bm141044,0801bm141001 | 0801ec141045,  0801cs141001 |
| EC6 | Industrial Production | 0801ip141001, 0801ip141066, 0801ip141034, 0801ip141087 | 0801ce141011,  0801ee141049 |
| EC7 | Civil | 0801ce141001, 0801ce141011, 0801ce141034, 0801ce141060 | 0801ip141087,  0801bm141001 |
| EC8 | Information Technology | 0801it141004, 0801it141041, 0801it141037, 0801it141060 | 0801ei141069, 0801ip141087 |
| EC9 | Electronics and Instrumentation | 0801ei141007, 0801ei141001, 0801ei141038, 0801ei141069 | 0801cs141001,  0801ee141049 |

**Boundary Value analysis Of Students:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Equivalence Class** | **Test Domain** | **Test Data** | **Invalid test Data** |
| EC1 | First Year | 0801cs141001,0801me141001, 0801ec141034, 0801ce141060 | 0801it131001,  0801cs121060 |
| EC2 | Second Year | 0801it131001, 0801ec131011, 0801bm131034, 0801ei131060 | 0801ec141034,  0801ec111034 |
| EC3 | Third Year | 0801ee121001, 0801ip121011, 0801ei121034, 0801cs121060 | 0801ee131011,  0801cs111011 |
| EC4 | Fourth Year | 0801ei111001,0801cs111011, 0801ec111034,0801me111060 | 0801cs141001,  0801bm131034 |

(**Note**: Since Departments and Students year wise classification are mutually exclusive. So, there is no boundary value. Hence, class will be same as Equivalence Class partitioning. )

**Cause Effect Graphing of “Assigning Subject to Teacher”**

|  |  |
| --- | --- |
| **Cause (ID)** | **Description** |
| C1 | Valid Membership |
| C2 | User type is ADMIN |
| C3 | Teacher is of same department as the department’s subject |

|  |  |
| --- | --- |
| **Effect** | **Description** |
| E1 | Subject is assigned to the teacher by ADMIN. |

Cause-Effect Graph-

**E1**

**C3**

**C2**

**C1**

(E1=C1^C2^C3)