|  |  |  |
| --- | --- | --- |
|  |  | **MECHA A** |
|  | **SCHOOL OF MECHATRONIC ENGINEERING**  **VETTING FORM**  Midterm Examination / Final Examination | |

|  |  |
| --- | --- |
| Course Code & Name |  |
| Semester & Academic Session |  |
| Course Coordinator |  |
| Course Examiners | 1.  2. |

**Table A: Course Outcomes to Programme Outcomes and Difficulty Level Mapping**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Outcome (CO)** | **Topics/ Content** | **Difficulty Level** | **Programme Outcomes** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Table B: Distribution of Course Outcomes and Difficulty Level According to Questions**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Course**  **Outcomes** | **Difficulty Level** | | | | | | **Total**  **Marks** | **Programme**  **Outcomes** | **Complex (WP)** |
| **C1** | **C2** | **C3** | **C4** | **C5** | **C6** |
| *Example* |  |  |  |  |  |  |  |  |  |  |
| *Q1(a)* | *CO1* |  | *5* |  |  |  |  | *20* | *PO1* |  |
| *Q1(b)* | *CO2* |  |  |  |  | *15* |  | *PO3* | *WP1,WP2* |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Complexity Level** | | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **Total** |  | **CPS?**  **Y/N** |
| **Total Marks** | |  |  |  |  |  |  |  |
| **Percentage (%)** | |  |  |  |  |  |  |  |
| **Distribution of Complexity Level (%)** | |  | |  | |  | |  |

Note: The Distribution of Difficulty Level for Final Examination paper must fulfil the specification shown in Table C.

**Table C: Difficulty Level Distribution and Year of Students for Final Examination**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Domain & Level of Complexity (%)** | | | | | |
| **C1**  **Knowledge** | **C2**  **Comprehension** | **C3**  **Application** | **C4**  **Analysis** | **C5**  **Synthesis** | **C6**  **Evaluation** |
| 1 | 10-30 | | 40-60 | | 20-40 | |
| 2 | 10-25 | | 40-60 | | 20-50 | |
| 3 | 10-20 | | 35-50 | | 35-60 | |
| 4 | 5-10 | | 35-50 | | 35-70 | |

**Table D: Complex Engineering Problem Solving (CPS)**

Complex Engineering Problems have characteristic WP1 and some or all of WP2 to WP7.

|  |  |  |
| --- | --- | --- |
| **WP** | **Attribute** | **Complex Engineering Characteristic** |
| WP1 | Depth of Knowledge | Cannot be resolved without in-depth engineering knowledge at the level of one or more of **WK3, WK4, WK5, WK6** or **WK8** which allows a fundamentals-based, first principles analytical approach |
| WP2 | Range of Conflicting | Involve wide-ranging or conflicting technical, engineering and other issues |
| WP3 | Depth of Analysis | Have no obvious solution and require abstract thinking, originality in analysis to  formulate suitable models |
| WP4 | Familiarity of Issues | Involve infrequently encountered  Issues |
| WP5 | Extent of Applicable Code | Are outside problems encompassed by standards and codes of practice for  professional engineering |
| WP6 | Extent of Stakeholder Involvement and Conflicting | Involve diverse groups of  stakeholders with widely varying needs |
| WP7 | Interdependence | Are high level problems including  many component parts or sub-problems |