**Appendix:**

**Title:** Design and Implementation of Gym Management System

**Attainment of Complex Engineering Problem (CP)**

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| **S.L.** | **CP No.** | **Attainment** | **Remarks** |
| 1. | P1: Depth of Knowledge Required | Yes | K3 (Engineering Fundamentals): Require knowledge of database design (Sec. 7). |
| K4 (Engineering Specialization): Require Knowledge of Bootstrap (Sec. 8). |
| K5 (Design): Flow Chart of Methodology shows solution design of the problem (Sec. 6). |
| K6 (Technology): XAMPP server, PHP, MySQL, Bootstrap, etc. (Sec. 8). |
| K8 (Research): Studied related application to find limitation (Sec. 3). |
| 2. | P2: Range of Conflicting Requirements | Yes | Gym (Gym Management Sec. 1), Web technologies (PHP, MySQL, Bootstrap, etc Sec. 8), Database Management System (Sec. 7). |
| 3. | P3: Depth of Analysis Required | No |  |
| 4. | P4: Familiarity of Issues | Yes | Working with Gym domain as a CSE student (Sec. 1). |
| 5. | P5: Extent of Applicable Codes | Yes | Use Waterfall software development model (Sec. 6). |
| 6. | P6: Extent of Stakeholder Involvement and Conflicting Requirements | Yes | Involves trainers, customers and admin (Sec. 4) |
| 7. | P7: Interdependence | Yes | Involve login, equipment management, Staff management, Member management, etc (Sec. 9). |

**Mapping of Complex Engineering Activities (CA)**

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| **S.L.** | **CA No.** | **Attainment** | **Remarks** |
| 1. | A1: Range of resources | Yes | Involves admin, trainer, customers and admin, Computer Engineers, Technologies: PHP, MySQL, MVC, Bootstrap, Laravel, etc. (Sec. 4 and Sec. 8). |
| 2. | A2: Level of interaction | Yes | Solve problem arises from various conflicting and other issues (Sec. 5). |
| 3. | A3: Innovation | No |  |
| 4. | A4: Consequences for Society and the Environment | Yes | Provides knowledge, tools and technologies for overall Gym (from trainer to equipment selling) which will increase productivity and profitability (Sec. 10). |
| 5. | A5: Familiarity | No |  |