**Minutes OF 19TH meeting of Board of Studies held on January  
 18, 2023**

The 19th meeting of Board of Studies (BoS) of Electrical Engineering Department was held on January 18, 2023 at 12:30 PM in the office of the Chairman Electrical Engineering Department. Following attended the meeting:

1. Engr. Dr. Raza Haider In Chair (Chairman, Electrical Engineering Department, BUET, Khuzdar)
2. Engr. Dr. Zahid Rauf Subject Specialist (Professor, Department of Electrical Engineering, (BUITEMS), Quetta)
3. Dr. Wazir Muhammad Leghari Member (Assistant Professor, Electrical Engineering Department, BUET, Khuzdar)
4. Engr. Muhammad Abid Mengal Member (Assistant Professor, Electrical Engineering Department, BUET, Khuzdar)
5. Dr. Shazia Baloch Member (Lecturer, Electrical Engineering Department, BUET, Khuzdar)
6. Engr. Liaqat Ali Lehri Observing Member (DG, QEC, BUET, Khuzdar.

The meeting was held with the consent of Dr. Zahid Rauf (Subject Specialist) Professor Department of Electrical Engineering, Balochistan University of Information Technology, Engineering and Management Science (BUITEMS), Quetta.

**Proceedings**

The meeting began with the name of Almighty Allah. Chairman welcomed and briefed the participants (members of the BoS) about the agenda points. The agenda items were discussed in detail and recommendations were given accordingly.

**Agenda Item-1: Confirmation of the Minutes of 17th Meeting of BoS held on November 13, 2020.**

The minutes of the 17th meeting of BoS were briefed by the chair. Dr. Shazia Baloch moved the minutes to confirm and Engr. Muhammad Abid Mengal seconded. No one objected.

**Recommendations:**

The minutes of 17th meeting of BoS held on November 13, 2020 were confirmed by the members and chair.

**Agenda Item-2: To Discuss and Review the Vision, Mission, and Program Educational Objectives of Electrical Engineering Program**

The vision and mission statements with the consultation of departmental OBE committee, industrial advisory board, and in view of the suggestions of PEVs in the last accreditation visit were kept in BoS for further improvement and recommendations, if required.

**Recommendations:**

After thorough discussions, the BoS recommended the already approved vision and mission statements and Program Educational Objectives of Electrical Engineering Program as follows:

**Program Vision:** To create an inspiring and productive environment for providing quality education and research

**Program Mission:** We are committed to provide students with comprehensive knowledge and practical skills which emphasize design and commitment to life-long learning in today’s hi-tech competitive market.

**Program Educational Objectives**

**PEO-1**: Be able to emphasize the practical aspects of engineering and widely recognized in the industry for their outstanding performance.

**PEO-02:** Be able to actively participate in continuous professional development and exhibit quest for learning.

**PEO-03:** Be able to show professional integrity and commitment to social and ethical responsibilities.

**Agenda Item-3: Attainment of CLOs and PLOs in Electrical Engineering Degree Program for OBE-based Accreditation**

**Recommendations:**

The members discussed the attainment criteria of CLOs and PLOs as per OBE system. The assessment and evaluation process in B.E Electrical Program were set and aligned with the vision/mission of the program. The attainment criterion is as follows:

**ATTAINMENT OF CLOs**The course learning outcomes are assessed by using direct assessment methods such as:  
• Test  
• Mid-term exam  
• Final exam  
• Assignment  
• Quiz  
• Complex engineering problem  
• Open ended labs

**CLO Attainment Criteria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assessment Type** | **Items Assessed** | **Assessment Tools** | **Key Performance Indicator (KPI)** | **Assessed By** | **When** |
| Direct | CLOs | Quizzes, Assignments, Lab reports, Semester Projects, FYP, Mid and Final Exam | Student marks ≥ 50% for a particular CLO  Cohort Level: Number of students attaining a particular CLO ≥50% | Course and Lab Instructor | Each Semester |

**Process for Evaluating Attainment of PLOs**

Attainment of PLOs will be evaluated based on both direct and indirect measurement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PLO** | **Level** | **Direct/Indirect** | **Key Performance Indicator (KPI)** | **Measurement Tool** |
| PLO  1 - 12 | Student | Direct | Particular PLO attained | Course-based PLO assessment of all courses. |
| Cohort | Direct | Number of students attaining a particular PLO >50%, in a particular course | Course-based PLO assessment of all courses. |
| Indirect | Number of graduating students agreeing having attained a particular PLO >50% | Graduating Survey |
| Alumni | Indirect | Number of alumni agreeing having attained a particular PLO >50% | Alumni Survey |

**Agenda Item-4: Curriculum Revision (for intake 2022) as per HEC approved curriculum 2017**

**Recommendations:**

The HEC approved curriculum of Electrical Engineering 2017 was reviewed by the respected members of BoS. It was recommended to adopt this approved curriculum for general electrical engineering degree. Some changes in the subject placement in different semesters were confirmed to have sound balance and fulfil pre-requisite criteria. The recommended curriculum with detail descriptions is provided in **Annex- A (1-3).**

1. Prof. Dr. Raza Haider Chairman \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Prof. Dr. Zahid Rauf Member (Subject Specialist) \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Dr. Wazir Muhammad Member \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Engr. Muhammad Abid Member \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Dr. Shazia Baloch Member \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Engr. Liaqat Ali Lehri Member (Observing) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Annexure A-1

**Table of Subject Ratio of Engineering and Non Engineering Domain**

**Non-Engineering courses offered by the department of electrical engineering**

| **Knowledge Area** | **Sub-Area** | **Course Title** | **Credit Hours** | | | | **No. of Sub** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Lec** | **Lab** | **Sub-Total** | **Total** |
| **Humanities** | English | Functional English | 3 | 0 | 3 | 8 | 3 |
| Communication Skills | 2 | 0 | 2 |
| Technical Report Writing | 3 | 0 | 3 |
| Culture | Islamic Studies / Ethics | 2 | 0 | 2 | 4 | 2 |
| Pakistan Studies | 2 | 0 | 2 |
| Social Science | Social Sciences **Elective-I** (Professional Ethics) | 3 | 0 | 3 | 6 | 2 |
| Social Sciences **Elective-II** (Organizational Behavior) | 3 | 0 | 3 |
| **Management Sciences** | | Management Sciences **Elective-I** (Entrepreneurship & Business Management) | 3 | 0 | 3 | 6 | 2 |
| Management Sciences **Elective-II** (Engineering Economics & Management) | 3 | 0 | 3 |
| **Natural Sciences** | Math | Calculus and Analytical Geometry | 3 | 0 | 3 | 12 | 4 |
| Linear Algebra | 3 | 0 | 3 |
| Differential Equations | 3 | 0 | 3 |
| Multivariable Calculus | 3 | 0 | 3 |
| Physics | Applied Physics/Electricity & Magnetism | 3 | 1 | 4 | 4 | 1 |
| Electives | Natural Sciences **Elective** (Numerical Analysis) | 3 | 0 | 3 | 3 | 1 |
| **Total 30-35% Non-Engineering** | | | | |  | 43 | 15 |

Annexure-A-2

**Engineering courses offered by the department of electrical engineering**

| **Knowledge Area** | **Sub-Area** | **Course Title** | **Credit Hours** | | | | **No. of Sub** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Lec** | **Lab** | **Sub-Total** | **Total** |
| **Computing** | CS | Introduction to Computing | 1 | 1 | 2 | 10 | 3 |
| Programming Fundamentals | 3 | 1 | 4 |
| Data Structure & Algorithms | 3 | 1 | 4 |
| **Electrical Engineering** | Foundation | Linear Circuit Analysis | 3 | 1 | 4 | 28 | 9 |
| Electrical Network Analysis | 3 | 1 | 4 |
| Workshop Practices | 0 | 1 | 1 |
| Signal & Systems | 3 | 1 | 4 |
| Electronic Devices and Circuits | 3 | 1 | 4 |
| Digital Logic Design | 3 | 1 | 4 |
| Probability Methods in Engineering | 3 | 0 | 3 |
| Engineering Drawings | 0 | 1 | 1 |
| Electromagnetic Field Theory | 3 | 0 | 3 |
| **Electrical Engineering** | Core | Communication Systems | 3 | 1 | 4 | 23 | 6 |
| Introduction to Embedded System | 3 | 1 | 4 |
| Electrical Machines | 3 | 1 | 4 |
| Linear Control Systems | 3 | 1 | 4 |
| Breadth **Core-I** (Power System Analysis) | 3 | 0 | 3 |
| Breadth **Core-II** (Power Dist. & Utilization) | 3 | 1 | 4 |
| **Electrical Engineering-Specialization** | Depth Electives | Depth **Elective-I** (Electrical Power Transmission) | 3 | 1 | 4 | 19 | 5 |
| Depth **Elective-II** (Power Electronics) | 3 | 1 | 4 |
| Depth **Elective-III** (Instrumentation & Measurements) | 3 | 1 | 4 |
| Depth **Elective-IV** (Power System Protection) | 3 | 1 | 4 |
| Depth **Elective-V** (Power Generation Systems) | 3 | 0 | 3 |
| **IDEE** | Electives | **IDEE-I** (Basic Mechanical Engineering) | 3 | 0 | 3 | 7 | 2 |
| **IDEE-II** (Computer Communication Networks) | 3 | 1 | 4 |
| **FYP** | SDP | Senior Design **Project-I** | 0 | 3 | 3 | 6 | 2 |
| Senior Design **Project-II** | 0 | 3 | 3 |
| **Total 65-70% Engineering** | | | | |  | **93** | **27** |

**Total credit Hours 136**  **HEC recommended credit hours 130 to 136**

\*Electrical Engineering Core (Breadth)

\*\*Electrical Engineering (Specialization Based)/ Technical Elective:

Annexure-A-3

**Proposed Curriculum Scheme for Intake 2019 Batch and Onwards**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

**Semester 1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Humanities / English | HS-116 | Functional English | 3 | 0 |  |
| **2** | Natural Sciences /Math | NS-116 | Calculus and Analytical Geometry | 3 | 0 |  |
| **3** | Computing/ CS | CS-111 | Introduction to Computing (ITC) | 1 | 1 |  |
| **4** | Humanities /Culture | HS-117 | Islamic Studies / Ethics | 2 | 0 |  |
| **5** | Natural Sciences/ Physics | NS-111 | Applied Physics/Electricity & Magnetism | 3 | 1 |  |
| **6** | Elect Engr./ Foundation | EE-116 | Workshop Practice | 0 | 1 |  |
| **Semester Credit Hours** | | | | **12** | **3** | **15** | |
| **Program Credit Hours** | | | | **15** | |  | |

**Semester 2**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Humanities/ English | HS-119 | Communication Skills | 2 | 0 | ITC (CS-111) |
| **2** | Elect Engr./ Foundation | EE-123 | Linear Circuit Analysis | 3 | 1 |  |
| **3** | Elect Engr./ Foundation | ME-112 | Engineering Drawing | 0 | 1 |  |
| **4** | Humanities/ Culture | HS-118 | Pakistan Studies | 2 | 0 |  |
| **5** | Natural Sciences /Math | NS-118 | Multivariable Calculus | 3 | 0 |  |
| **6** | IDEE-I | ME-126 | Basic Mechanical Engineering | 3 | 0 |  |
| **Semester Credit Hours** | | | | **13** | **2** | **15** |
| **Program Credit Hours** | | | | **30** | |  |

**Semester 3**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Computing/ CS | CS-229 | Programming Fundamentals | 3 | 1 |  |
| **2** | Elect Engr./ Foundation | EE-212 | Electronic Devices & Circuits | 3 | 1 |  |
| **3** | Social Sciences Elective-I | SS-465 | Professional Ethics | 3 | 0 |  |
| **4** | Natural Sciences /Math | NS-119 | Differential Equations | 3 | 0 |  |
| **5** | Elect Engr./ Foundation | EE-211 | Electrical Network Analysis | 3 | 1 | LCA (EE-123) |
| **Semester Credit Hours** | | | | **15** | **3** | **18** |
| **Program Credit Hours** | | | | **48** | |  |

**Semester 4**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Computing / CS | CS-319 | Data Structure & Algorithms | 3 | 1 |  |
| **2** | Elect Engr. Core/ Breadth | CS-322 | Introduction to Embedded System | 3 | 1 |  |
| **3** | Natural Sciences /Math | NS-120 | Linear Algebra | 3 | 0 |  |
| **4** | Elect Engr./ Foundation | CS-219 | Digital Logic Design | 3 | 1 |  |
| **5** | Elect Engr./ Foundation | EE-228 | Probability Methods in Engineering | 3 | 0 |  |
| **Semester Credit Hours** | | | | **15** | **3** | **18** |
| **Program Credit Hours** | | | | **66** | |  |

**Semester 5**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Elect Engr. Core/ Breadth | EE-316 | Power System Analysis (PSA) | 3 | 0 |  |
| **2** | Elect Engr./ Foundation | EE-224 | Signal and System | 3 | 1 | DLD |
| **3** | Elect Engr. Core/ Breadth | EE-325 | Communication Systems | 3 | 1 |  |
| **4** | Elect Engr. Core/ Breadth | EE-223 | Electrical Machines | 3 | 1 |  |
| **5** | Management Sciences | MS-302 | Engineering Economics & Management | 3 | 0 |  |
| **Semester Credit Hours** | | | | **15** | **3** | **18** |
| **Program Credit Hours** | | | | **84** | |  |

**Semester 6**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Elect Engr./ Foundation | EE-326 | Electromagnetic Field Theory | 3 | 0 |  |
| **2** | Depth Elective | EE-311 | Power Generation Systems | 3 | 1 | PSA |
| **3** | Depth Elective | EE-314 | Instrumentation & Measurements | 3 | 1 |  |
| **4** | Elect Engr. Core/ Breadth | EE-324 | Linear Control System | 3 | 0 |  |
| **5** | Humanities / English | HS-317 | Technical Report Writing | 3 | 0 |  |
| **Semester Credit Hours** | | | | **15** | **2** | **17** |
| **Program Credit Hours** | | | | **101** | |  |

**Semester 7**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Depth Elective | EE-315 | Power Electronics | 3 | 1 |  |
| **2** | IDEE-II | CS-441 | Computer Communication Networks | 3 | 1 |  |
| **3** | Elect Engr. Core/ Breadth | EE-318 | Power Dist. & Utilization | 3 | 1 |  |
| **4** | Social Sciences Elective-II | SS-474 | Organizational Behavior | 3 | 0 |  |
| **5** | FYP/ SDP | EE-424 | Senior Design Project-I | 0 | 3 |  |
| **Semester Credit Hours** | | | | **12** | **6** | **18** |
| **Program Credit Hours** | | | | **119** | |  |

**Semester 8**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Knowledge Area/ Sub-Area** | **Code** | **Course Title** | **Credit Hours** | | **Prerequisite** |
| **Lec** | **Lab** |
| **1** | Depth Elective | EE-414 | Power System Protection | 3 | 1 |  |
| **2** | Depth Elective | EE-423 | Electrical Power Transmission | 3 | 1 |  |
| **3** | Management Sciences | MS-327 | Entrepreneurship & Business Management | 3 | 0 |  |
| **4** | Natural Sciences /Math | NS-125 | Numerical Analysis | 3 | 0 |  |
| **5** | FYP/ SDP | EE-424 | Senior Design Project-II | 0 | 3 |  |
| **Semester Credit Hours** | | | | **12** | **5** | **17** |
| **Program Credit Hours** | | | | **136** | |  |

Non-Engineering Credit hours: 43

Engineering Credit hours: 93

Total no. of credit hours: 136