This course is to be employed to record program data and info during the fact finding and rating procedure. Use the following quality ratings throughout the form:

**E**    **Exceptional**    (Strong, effective practice or condition)

**S**    **Satisfactory**    (Fully meets the criterion)

**O**    **Observation**    (Suggestion offered to improve a program)

**C**    **Concern**    (Criterion satisfied; however, the potential exists for the situation to change)

**W**   **Weakness**    (Lacks strength and remedial action is required.)

**D**    **Deficient**    (Fails to meet the criterion, and corrective action is required.)

**X**    **Not Applicable**

Enter explanatory comments and ratings for each of the performances.

*Acknowledgment: This form is designed as per guidelines of ABET and Seoul Accord.*

# Contents

# Undergraduate Degree Program Review Worksheet

| Program Identification | |
|---|---|
| **Name of Institution**: | |
| **Status**: | ☐ Degree Awarding          ☐ Affiliated |
| **Total Affiliations Awarded (if applicable)**: | |
| **Affiliated From Institution (if applicable)**: | |
| **Program Title**: | ☐ BS(CS)  ☐ BS(SE)  ☐ BS(IT)  ☐ BS(AI)  ☐ BS(DS)  ☐ BS(CYS) |
| **Evaluated By**: | |

*Summarize findings using the ratings E, S, O, C, W, D, or X. Multiple ratings can be entered for an item*

| Evaluation Summary | | |
|---|---|---|
| **Criterion** | **Quality Rating** | **Comments** |
| **1. Admission** | | |
| 2. Students | | |
| 3. Program Educational Objectives (PEOs) | | |
| 4. Student Outcomes | | |
| **5. Curriculum** | | |
| 6. Learning Process & Continuous Quality Improvement | | |
| 7. Faculty and Support Staff | | |
| 8. Facilities and Infrastructure | | |
| 9. Industrial Linkage | | |
| 10. Institutional Support and Financial Resources | | |

## Corrective Action on Previous NCEAC Findings

List the unresolved findings from the most recent NCEAC Final Statement for this program and briefly describe

the corrective action given in the self-study or found during the site visit.  Describe findings not yet resolved.

| Unresolved findings from previous accreditation actions and brief statement of corrective actions reported in the self-study or found during the site visit. | Details of the findings not yet resolved |
|---|---|
| | |

## Criterion 1 - Admission

**Performance:** *Evaluate the extent to which the program attains the following elements of Criterion 1.*

| Objectives | Quality Rating | Comments |
|---|---|---|
| a. Policies for admission to the program meet NCEAC requirements and are enforced.<br>*Guideline: Minimum 50% Marks in intermediate or equivalent with Mathematics Quality of intake Ranking will be done on quality of intake. Cut of Merit:*<br>*<= 55% Low*<br>*<= 70% Medium*<br>*>=70% High* | | |
| b. Annual intake in-line with the maximum intake allowed by NCEAC for the program<br>*Guideline: Note number of admissions in a year (Fall and Spring)* | | |
| c. Number of sections in each admission batch are sufficient to maintain manageable class sizes.<br>*Guideline: One section contains 50 students* | | |

## Criterion 2 - Students

**Academic Policy:** *How effective institutional academic policies facilitate students.*

**Performance:** *Evaluate the extent to which the program attains the following elements of Criterion 2.*

| Objectives | Quality Rating | Comments |
|---|---|---|
| a. Prerequisites are enforced and any waivers are documented. | | |
| b. Policies exist and enforced for accepting transfer of students and transfer of credit hours. | | |
| c. Process in place for student advisement regarding curriculum and career matters. | | |

| | Quality Rating | Comments |
|---|---|---|
| d. Policies exist, documented, and enforced for awarding credit in lieu of courses<br>*Guideline: Note that not granting such credit is an acceptable policy.* | | |
| e. Policies exist and enforced for ensuring and documenting that each graduate meets all program graduation requirements in line with HEC and NCEAC criteria. | | |
| f. Is semester academic load manageable<br>*Guideline: Note that semester academic load should be 15-18 credit hour.* | | |
| g. Does program facilitate students' participation in national / international software exhibitions and / or competitions.<br>*Guideline: Note the evidence for such facilitation by program for such participations.* | | |
| h. Is there existing quality of the process to evaluate student performance and suggest / taking corrective measures?<br>*Guideline: Note the evidence for such quality of process and corrective measures taken.* | | |

## Criterion 3 –Program Educational Objectives (PEOs)
**Performance:** *Evaluate the extent to which the program attains the following elements of Criterion 3.*

| Objectives | Quality Rating | Comments |
|---|---|---|
| a. There are published Program Educational Objectives (PEOs) consistent with the vision and mission of the institution.<br>*Guideline: Evidence required for publishing PEOs.* | | |
| b. There exists a mechanism that involves stakeholders (*Industry Partners*, *Academicians*, *Alumni's*) in the formulation and review of PEOs.<br>*Guideline: Minutes of meeting or relevant* | | |

| | Quality Rating | Comment |
|---|---|---|
| *document required as an evidence.* | | |
| c.  There is a process in place to evaluate the attainment of PEOs through well-defined KPIs.<br>***Guideline:*** *Note the well-defined KPIs and how the process evaluates the attainment of PEOs.* | | |

## Criterion 4 - Student Outcomes (SOs)

**Performance:** ***Evaluate the extent to which the baccalaureate program student outcomes encompass the following elements of***
***Remark: Criterion 4 is required for Outcome Based Education Accreditation only.***

| Student Outcomes | Quality Rating | Comment |
|---|---|---|
| a.  Student Outcomes (SOs) are clearly defined, published, and adequate in breadth and depth to encompass all the learned capabilities.<br>***Guideline:*** *Note the SOs as mentioned in Seoul accord.* | | |
| b.  The student outcomes prepare graduates to attain the PEOs that were adopted by the program. | | |
| c.  There is a documented and effective process for the periodic review and revision of SOs. | | |
| d.  There is a documented process for the assessment and evaluation of student outcome attainment? Comment on each of the following SOs.<br>***Guideline:*** *Note the criteria and mechanism (direct or indirect) how SO are evaluated.* | | |
| i. ***Academic Education:***<br>***Guideline:*** *Completion of an accredited program of study designed to prepare graduates as computing professionals.* | | |
| ii. ***Knowledge for Solving Computing*** | | |

| Student Outcomes | Quality Rating | Comment |
|---|---|---|
| *Problems:*<br>*Guideline: Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.* | | |
| *iii.    Problem Analysis:*<br>*Guideline: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.* | | |
| *iv.    Design/ Development of Solutions:*<br>*Guideline: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.* | | |
| *v.    Modern Tool Usage:*<br>*Guideline: Create, select, adapt, and apply appropriate techniques, resources, and modern computing tools for complex computing activities, with an understanding of the limitations.* | | |
| *vi.    Individual and Teamwork:*<br>*Guideline: Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary* | | |

| Student Outcomes | Quality Rating | Comment |
|---|---|---|
| *settings.* | | |
| *vii.* *Communication:*<br>*Guideline: Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions* | | |
| *viii.* *Computing Professionalism and Society:*<br>*Guideline: Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice* | | |
| *ix.* *Ethics:*<br>*Guideline: Understand and commit to professional ethics, responsibilities, and norms of professional computing practice* | | |
| *x.* *Life - long Learning:*<br>*Guideline: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional* | | |
| *xi.* *Additional SOs (if defined in the Program):*<br>*Guideline: Program may choose to have additional student outcomes. Note the rationale and attainment process of such outcomes.*<br>*(Please use additional sheet if required)* | | |

| Student Outcomes | Quality Rating | Comment |
|---|---|---|
| e. Course Learning Outcomes (CLOs) are properly mapped to the student outcomes | | |
|     *i.* **Mapping involves emphasis of each CLO in SO assessment.** <br> **Guideline:** *Note that each CLO can have low, medium, or high emphasis on the student outcomes. Learning levels (from Bloom's taxonomy) and course's contribution to the computing program can suggest emphasis levels.* | | |
|     ii. **Mapping involves a fair share of Knowledge, Skills and Attributes (KSA) based student outcomes.** <br> **Guideline:** *Relevant document for such mapping required as an evidence.* | | |
|     *iii.* **Mapping adequately covers all student outcomes, and all assessment methodologies used for the program** <br> **Guideline:** *Each student outcome should be covered by multiple CLOs (through multiple courses), that are assessed through different assessment methodologies.* | | |
|     iv. **There is a documented and effective process for review and revision of course outcomes and their mappings.** <br> **Guideline:** *Minutes of meeting or relevant document required as an evidence.* | | |
|     v. **There is a documented process for assessment and evaluation of course outcomes** <br> **Guideline:** *Minutes of meeting or relevant document required as an evidence.* | | |

| Student Outcomes | Quality Rating | Comment |
|---|---|---|
| f. Evaluation results are systematically used as input for the continuous improvement of the program. The process is documented and institutionalized.<br>*Guideline: This involves closing all three loops for program improvement, i.e. program outcomes, student outcomes and course outcomes.* | | |
| g. Evidence is provided regarding decisions made and actions taken to improve the program. | | |

## Criterion 5 - Curriculum
**Performance:** *Evaluate the extent to which the program demonstrates the following characteristics required by the Criterion.*

| GENERAL | Quality Rating | Comment |
|---|---|---|
| a. The curriculum covers required breadth, depth and distribution of the program courses according to latest HEC and NCEAC guidelines.<br>*Guideline: A copy of approved curriculum required as an evidence.* | | |
| b. Course outcomes defined for all courses with appropriate Learning-Levels (e.g. the ones defined in Bloom's Taxonomy).<br>*Guideline: Evidence document for CLOs* | | |
| c. There is formal involvement of industry in curriculum development / revision.<br>*Guideline: Minutes of meeting or relevant document required as an evidence.* | | |

| Element | Quality Rating | Comment |
|---|---|---|
| d. Theory Contact Hours per credit hour per week are appropriate.<br>*Guideline: 1 contact hour per credit hour per week* | | |
| e. Lab Contact Hour per credit hour per week are appropriate.<br>*Guideline: 3 contact hours per credit hour per week* | | |
| f. Total number of weeks of teaching per semester/term are sufficient.<br>*Guideline: No of teaching weeks per semester should not be less than 15.* | | |

## Criterion 6 – Learning Process & Continuous Quality Improvement

**Performance:** *Evaluate the assessment, evaluation, and improvement processes for the program with regard to the following Criterion 7 requirements.*

| Element | Quality Rating | Comment |
|---|---|---|
| a. The CQI process in place to evaluate for assessing student learning at course, program and PEOs level?<br>*Guideline: Note the assessment criteria.* | | |
| b. Course folders are maintained as per NCEAC guidelines.<br>*Guideline: Evaluate course folders randomly.* | | |
| c. Sufficient exposure to complex computing problems with semester level projects.<br>*Guideline: Evaluate course folders randomly for semester level project.* | | |
| d. Lab work supporting the attainment of the required skills and its assessment mechanism. | | |

| Element | Quality Rating | Comment |
|---|---|---|
| *Guideline: Evaluate lab manual and Lab work.* | | |
| e. Sufficient exposure to computing based solution developed by FYP and semester projects in programming courses.<br>*Guideline: Evaluate students FYP report and projects in programming courses.* | | |
| f. Employment of other aspects of student learning such as tutorial system and seminar / workshops, etc. to enhance student learning, in addition to regular classroom interaction and lab experimentation.<br>*Guideline: Evidence required for such activities.* | | |
| g. Exposure to industrial learning through internship program with formal feedback from the employer.<br>*Guideline: Relevant document/evidence required for such exposure.* | | |
| h. Actions taken / implementation plans worked out to address the concerns/weaknesses identified in the last accreditation visit report. | | |
| i. CLOs defined for all courses with appropriate Learning-Levels, e.g. the ones defined in Bloom's Taxonomy, and their mapping to relevant PLOs | | |
| j. Assessment of various learning outcomes (PLOs/CLOs) employing appropriate direct / indirect methods. | | |

| Element | Quality Rating | Comment |
|---|---|---|
| k. Attainment of GAs in three domains (KSA); Summative assessment of the Graduating Students. | | |

## Criterion 7 - Faculty

**Performance:** *Evaluate the extent to which the faculty demonstrates the following characteristics required by the Criterion.*

| Characteristic | Quality Rating | Comment |
|---|---|---|
| a. Preferably Program should be headed by a PhD (computing discipline) or a senior faculty member (FM). | | |
| b. Collectively, the faculty has breadth and depth adequate to cover all program curricular areas. *Guideline: Qualified to teach computing courses for four sections (1st, 2nd, 3rd and 4th year) of each admitted batch should be available.* | | |
| c. Size of the faculty (core full-time faculty members in the program under evaluation) sufficient to maintain continuity, stability, oversight, and to provide student interaction and advising? *Guideline: Minimum of Seven (5(undergraduate + 2(graduate) full-time faculty members.* | | |
| d. The faculty Teaching workload is justifiable *Guideline:*    *i. Full-time faculty must teach at least 2 courses in a semester, in the program under evaluation.*    *ii. If an FM teaches one course per semester, he will be counted as a visiting FM. Three visiting core FMs will be counted as one full-time core FM.* | | |
| e. Core Faculty Members have a PhD/MS qualification *Guideline:*    *i. All FMs should preferably hold a PhD* | | |

| | | |
|---|---|---|
| *degree in relevant area, but at least one FM must hold a PhD in computing.*<br>ii. *FM without an MS degree (earned after 18 years education) in relevant discipline should not be teaching any course.* | | |
| f. A formal mechanism for faculty training and mentoring on pedagogical skills, including OBE concepts and implementation methodologies exist.<br>*Guideline: Relevant document/evidence required for such mechanism.* | | |
| g. Effectiveness of the faculty development program to ensure their professional growth and retention. | | |
| h. Young faculty that wants to pursue higher studies is facilitated. | | |
| i. Involvement of faculty in research, publications, and sponsored projects from industry/donor agencies, etc. | | |
| j. What is the satisfaction level of the faculty? | | |
| k. Size of faculty offices is appropriate.<br>*Guideline: Ensure the faculty offices as per prescribed criteria*<br>i. *Minimum 75 Square feet of area per faculty member.*<br>ii. *Not more than two faculty members in a room.* | | |
| l. What is the Understanding level of faculty regarding OBE Mode of teaching and evaluation? | | |
| m. What Incentives are given to the faculty annually other than salaries? | | |

## Criterion 8 – Infrastructure and Facilities

**Performance:** *Evaluate the following characteristics related to the engineering technology facilities that are required by this Criterion.*

| Characteristic | Quality Rating | Comment |
|---|---|---|
| a. Are Classrooms and laboratories sufficient and appropriate?<br>*Guideline:*<br>i. *Minimum 3 classrooms for four sections, having not more than 50 students each*<br>ii. *Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.* | | |
| b. Are computing resources, equipment, and software/tool (for laboratories) up to date?<br>*Guideline: Ensure the following:*<br>i. *Appropriate to the program and to support program needs.*<br>ii. *Available, and systematically maintained and upgraded.*<br>iii. *Appropriate guidance for student usage is available.*<br>iv. *The students to PC ratio should not exceed 5:1*<br>v. *Lab Manuals.*<br>vi. *Equipment catalogs.* | | |
| c. Is Digital Logic Design lab available for Computer Science program only? | | |
| d. Is an exclusive lab for FYP to house a minimum of 10 stations per final year section exist? | | |
| e. Are there any high-tech computing labs or resources available for conducting projects in AI, IOT, Cyber Security, Digital Forensics | | |

| | | |
|---|---|---|
| Machine Learning, Cloud Computing, Deep Learning and Robotics. | | |
| f. Provision and effectiveness of consulting and career placement services provided to the students. | | |
| g. Is there any incubation center available within the premises of your institution? | | |
| h. Do your institution offer any startup program to support entrepreneur inn transforming their ideas into companies. | | |
| i. Are there appropriate information resources to support the scholarly activities of students and faculty, e.g. Library, Internet access, Professional technical publications etc.<br>***Guidelines:*** *Note the following:*<br>i. *The Library should have a minimum of 200 computing unique titles.*<br>ii. *The Library should have a minimum of 2 Computing related books per student.*<br>iii. *The Library should have an online access to digital computing related books.*<br>iv. *The Library should have an online access to at least 5 IEEE, ACM etc., journals/ proceedings for students & FMs.* | | |
| j. Adequacy of support facilities such as:<br>***Guidelines:*** *Note the following:*<br>i. *Open Areas for Students.*<br>ii. *Outdoor & indoor Sports Facilities.*<br>iii. *Prayer area (male and female).*<br>iv. *Hostel Facilities (Boys and Girls).*<br>v. *Medical Center.*<br>vi. *Transport.* | | |

| Characteristic | Quality Rating | Comment |
|---|---|---|
| k. Adequacy of arrangements made / measures taken to ensure workplace safety (EHS concerns) in general, and while performing experiments in the labs. In particular. | | |

## Criterion 9 - Industrial Linkages

**Performance:** *Evaluate the extent to which the program attains the following elements of Criterion 9.*

| Characteristic | Quality Rating | Comment |
|---|---|---|
| a. The Existence of active Industrial Advisory Board/Committee.<br>***Guidelines:*** *Note the evidence.* | | |
| b. A Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs.<br>***Guidelines:*** *Note the evidence.* | | |
| c. Opportunities for students to acquire industrial experience via internships and existence of Industry-Liaison office.<br>***Guidelines:*** *Note the evidence.* | | |
| d. Design projects sponsored / supervised jointly by Industry Professionals and faculty members.<br>***Guidelines:*** *Note the evidence.* | | |
| e. Faculty members involved in design / supervision / consultancy role in the industry in the execution of applied research / design projects that are relevant to society / industrial, in house space for industry.<br>***Guidelines:*** *Note the evidence.* | | |

## Criterion 10 - Institutional Support

**Performance:** *Evaluate the support and financial resources for the program by the institution and employers as required by this Criterion.*

| Characteristic | Quality Rating | Comment |
|---|---|---|
| a. Adequate institutional support and leadership to assure the quality and continuity of the program. | | |
| b. Sufficient resources (institutional services, financial support, and staff) to provide an environment to which student outcomes can be attained. | | |
| c. Sufficient resources (institutional services, financial support, and staff) to attract, retain, and provide for the continued professional development of a qualified faculty. | | |
| d. Sufficient resources (institutional services, financial support, and human resources staff) to acquire, maintain, update, and operate infrastructure, facilities, and equipment appropriate to the program. | | |