ACCREDITATION MANUAL

2021

National Computing Education Accreditation Council

Established by
Higher Education Commission
Pakistan

ACCREDITATION MANUAL

of

National Computing Education
Accreditation Council
Islamabad

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Chairman's Message

National Computing Education Accreditation Council (NCEAC) is the Regulatory Body to undertake multiple tasks; one of these is to regulate the conduct of computing education in the country. The Council is committed to offer accreditation of the computing programs which is highly beneficial for students, their families, employers and society. Over the past one decade, the Council made significant progress which has been shared with all stakeholders on a regular basis. As an organization, NCEAC emerged as a highly reputed name for accreditation amongst the Pakistani society. The Council also expanded the accreditation frontiers, and has accredited 267 programs at 154 Institutions countrywide. As a result, various formats/proformas used in the assessment process have been revised and updated accordingly. A major achievement in this regard is the publication of the first Manual of Accreditation in January 2021. It has also incorporated all aspects of the accreditation process. It is expected that this manual will provide guidelines to institutions and other stakeholders to meet the required quality assurance standards. We couldn't have prepared this manual without the incredible work and dedication of our team at the NCEAC secretariat and members of the General Council, who are committed to making a difference in the computing education students receive at institutions around the country.

We believe in a quality accreditation system. The accreditation of computing programs is of a specialized nature. Therefore, the Council trained a record number of new Program Evaluators (PEs) during the past 10 years. The training of PEs is a regular feature and continued during the COVID-19 pandemic through an online system. It is my pleasure to state that in addition to our growing accreditation activities, we are also experiencing an increase in the numbers of PEs. These PEs are vital to the accreditation process and play an important role to make field-audit visits successful. We are thankful to them.

In addition to roles of the NCEAC and PEs during the accreditation process, we are also engaging faculty and administrators of the institute seeking accreditation. The roles of the faculty and administrators of the accrediting institutes are crucial. They are the people who are preparing the global technology professionals of tomorrow. The Council maintains a strong liaison with them and offers various training and consultation sessions to strengthen their capacity. Further, the Council has also involved computing industries at various stages of the accreditation process from development of curriculum till the making of policies. The Council offers a significant number of slots in the General Council to industry. The Council also discussed the possibility of encouraging experts from the industry to teach courses at the university with relaxation on the qualification for experienced individuals.

I also want to draw your attention to two new developments which we are planning to launch, 1. Outcome Based Education and Accreditation system 2. Recognition/registration of the NCEAC by Seoul Accord. I request everyone to support our mission to produce top class computing graduates who can serve the society in the best possible manner.

This manual exhibits the cumulative and highly focused efforts of the Chairman NCEAC, Prof. Dr. Syed Mansoor Sarwar, Vice Chairperson, Prof. Dr. Jamil Ahmad, Members of NCEAC, Prof. Dr. Muhammad Ali Maud, the founder Chairperson of NCEAC, Prof. Dr. Aftab Ahmad, and NCEAC Secretariat, especially Ms. Sumaira Hafeez, Program Coordinator, NCEAC and Mr. Syed Usama Ali, Assistant Software Engineer, NCEAC.

Prof. Dr. Syed Mansoor Sarwar
Chairman NCEAC

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Acronyms

AAS	Accreditation Automation System
AIC	Accreditation Inspection Committee
ASC	Accreditation Standard Committee
CG	Computing Graduate
CLO	Course Learning Outcome
CQI	Continual Quality Improvement
Cr Hrs	Credit Hours
DAI	Degree Awarding Institution
FP	Focal Person
GA	Graduate Attributes
GC	General Council
HEC	Higher Education Commission
HEI	Higher Education Institution
NCEAC	National Computing Education Accreditation Council
NCRC	National Curriculum Review Committee
OBA	Outcome Based Assessment
OBE	Outcome Based Education
SA	Seoul Accord
PEOs	Program Educational Objectives
PEs	Program Evaluators
PLO	Program Learning Outcome

Glossary

Accredited Program	A computing program whose graduates are acceptable for registration with NCEAC. This is accorded to a program that satisfies the minimum standard for accreditation set by NCEAC.
Council	National Computing Education Accreditation Council.
Course	Subject offered in the program.
Degree	A computing qualification in Pakistan recognized by NCEAC and HEC.
Faculty	The entity which includes schools and departments responsible for designing and conducting the program to be accredited.
Department	The entity which offers computing program to be accredited.
Graduate	Anyone who has been conferred upon a degree.
Computing Graduate	A graduate who holds the computing degree of HEC recognized HEIs.
Program	The sequence of structured educational experience undertaken by students leading to completion, on Satisfactory assessment of performance.
Program Evaluators	A panel of evaluators approved by GC to visit computing program based on accreditation criteria.
Program Deferred	This is the status of a program that fails to meet the minimum standard for accreditation and has major shortcomings.
Program Not Accredited	The Program of the Institute which has not yet been visited/Accredited by NCEAC.
Student	Anyone undertaking a "computing" undergraduate program.
Curriculum	A curriculum is the combination of instructional practices, learning experiences, and students' performance assessment that are designed to bring out and evaluate the target learning outcomes of a particular course.

CHAPTER NO. 1

INTRODUCTION TO ACCREDITATION

1.1 Introduction

Higher Education Commission (HEC) of Pakistan was constituted on 11th September 2002 by the promulgation of Ordinance F. No. 2(1)/2002.Pub. The HEC as per the article 3 Sub-Section (e) has been authorized to set up national or regional evaluation councils or authorize any existing council or similar body to carry out accreditation of Programs by giving them appropriate ratings. The Commission shall help build capacity of existing councils or bodies in order to enhance the reliability of the evaluation carried out by them. Now therefore, the said council by the name of **National Computing Education Accreditation Council (NCEAC)** is established with immediate effect with the following, organization, objectives, functions and duties to perform.

Computing has emerged as a major academic discipline and a professional field in Pakistan in the beginning of this century. A large number of educational institutions offer degree programs in computing related areas both in public and private sectors. It has, therefore, become essential that an internationally acceptable and industrially viable set of criteria may be evolved for various degree programs in computing related degree awarding institutions (DAIs). For this purpose, it is proposed that an accreditation authority be setup (as mentioned above), which would periodically evaluate, scrutinize, and monitor the standards followed in different degree awarding institutions and their affiliated colleges. The initial work to setup standards and procedures was carried out by the National Curriculum Revision Committee (NCRC) of Computer Science in 2003 and 2004. The NCRC suggested a comprehensive mechanism to grant accreditation to computing related degrees/disciplines in Pakistan. Keeping in view the importance of the computing discipline, the HEC approved recommendations of the NCRC and establish the said council by the name of National Computing Education Accreditation Council as mentioned above. This was first council to be established by HEC to offer accreditation services to the country.

Since its inception, the NCEAC started accreditation of the computing programs offered by universities in Pakistan. The Council ensures that computing education imparted to students is of high quality and meets the minimum standards prescribed by HEC. Accreditation by NCEAC is mandatory for every computing program offered by any public or private University/DAI in Pakistan. It is also mandatory for the affiliated colleges associated with any University/DAI.

1.1.1 Accreditation of Computing Programs

In this age of technological advancements, it is imperative to ensure quality and purpose of our educational programs. Computing profession undoubtedly plays a pivotal role in the development of a nation. To improve quality of computing education in Pakistan requires regular review, guidance, and quality improvement mechanisms. Accreditation process is considered an effective instrument to achieve these goals.

Accreditation protects and promotes the interest of all stakeholders, namely parents, students, faculty, academic administrators, employers, and taxpayers. It serves to notify: Parents and

prospective students that a program has met minimum standards; faculty, deans and administrators of a program's strengths and weaknesses and of ways to improve the program; employers that graduates are prepared to begin professional practice; taxpayers that their funds are rightly spent; and the public that graduates are aware of public health and safety considerations.

a. Accreditation shall be a mandatory process for all relevant academic programs offered by public and private sector institutions. The incentives for obtaining such accreditation shall include enhanced recognition in the computing community and prospective students.
b. All institutions in Pakistan, which grant a Recognized Computing Qualification, must apply to the Council to have such qualification accredited.
c. Accreditation will be carried under the umbrella of HEC and via the National Computing Education Accreditation Council.
d. The Council shall publish a list of Accredited Programs as prescribed.
e. The Recognized Computing Qualifications granted by institutions recognized by the respective authorized bodies outside Pakistan shall also be recognized by the Council as per need in case of Pakistani graduates of a computing program.
f. Every institution in Pakistan which has an Accredited Program shall furnish such information as the Council may, from time to time, require as to the courses of study and examination to be undergone in order to obtain such Recognized Computing Qualification.
g. The Council shall appoint such number of Program Evaluators (PEs) as it may deem requisite to attend at any or all of the examinations held by the institutions in Pakistan for the purpose of granting Recognized Computing Qualifications which are accredited or in respect of which accreditation has been sought.

1.2 Objectives

The main objective of the accreditation system developed by NCEAC is to ensure that the institute possesses certain facilities including minimum required number of faculty to offer degree program in computing. This helps prospective students to gain confidence about the quality of education they can expect to receive at a particular university. It is a process to assure quality in degree programs in educational institutions. It would require an educational institution or program to meet a defined standards or criteria. It is not a ranking system. It is simply an assurance that a program or institution meets a minimum standard.

Accreditation helps the following purposes:

- Guidance for Improvement
- Easing Transfer of students between Universities
- Recognition of Qualifications
- Increase Employer Confidence

The detailed objectives of the accreditation process are as follows:

a. To ensure the value-addition in transforming students admitted to the program capable

computing professionals.

b. To ensure that graduates of the computing accredited programs achieved all attributes set by the NCEAC.
c. To ensure that the graduates of computing accredited programs possess all necessary technical skills required by the job market.
d. To ensure that the quality of resources, at the institute which offers computing accredited programs, are up to the mark to award degree in computing disciplines.
e. To ensure that the curriculum of the accredited computing programs is designed and executed as per NCEAC standards and criteria.
f. To ensure continuous improvement in the computing programs through accreditation and re-accreditation process.

1.3 Scope

Currently, the NCEAC accredits the following degree programs: (listed in alphabetical order):

i. BS Artificial Intelligence (4 Years)
ii. BS Bioinformatics (4 Years)
iii. BS Computer Science (4 Years)
iv. BS Cyber Security (4 Years)
v. BS Data Science (4 Years)
vi. BS Information Systems (4 Years)
vii. BS Information Technology (4 Years)
viii. BS Software Engineering (4 Years)

1.4 Need for Accreditation

The main objective of the computing accreditation system in Pakistan is to validate and certify the quality and standards, which are used to award degrees in computing disciplines. Since higher education is a global phenomenon, the process of the accreditation is crucial for a computing graduate (CG) who will go abroad for further studies or job. The need and demand for accreditation of computing programs in Pakistan has arisen because of the expansion in the number and diversity of such educational institutions and programs. Further, the accreditation shall provide.

1.4.1 National and International Recognitions

The accreditation shall provide an opportunity to the accredited program to be recognized nationally and internationally.

a. NCEAC shall be a nationally and internationally recognized body for Higher Education Accreditation of Computing in Pakistan. It shall be responsible for the accreditation of educational programs leading to degrees in the discipline of computing.
b. Its endorsement and certification shall be valued and drawn on by professional and

technical societies, by employers, and by the institutions themselves for self-appraisal and improvement.

c. NCEAC shall run and execute the accreditation programs on behalf of HEC under its guidance and instructions.

1.5 Provisions of Accreditation in the HEC Act

As mentioned in the introduction that HEC as per the article 3 Sub-Section (e) has been authorized to set up national or regional evaluation councils or authorize any existing council or similar body to carry out accreditation of programs by giving them appropriate ratings. Recently, HEC made it mandatory through public notices that degree in the computing domain will not be attested if awarded by a non-credited program. Following these provisions, the NCEAC initiates various efforts to facilitate universities/DAIs in Pakistan by making measureable parameters, procedures, training of evaluators and creating a comprehensive setup at HEC, Islamabad for the council.

1.6 Composition and Constitution of the Council

The Council shall consist of following members, to be nominated by the Controlling Authority in the first and subsequent instances namely:-

a. The Chairperson.
b. The Vice-Chairperson.
c. A Representative of Higher Education Commission (ex-officio).
d. A Representative of Ministry of Science and Technology (ex-officio).
e. A Representative from Ministry of Information Technology and Telecommunication (ex-officio).
f. One Representative each from Provincial Education/Information Technology Departments (ex-officio).
g. Four members from leading software industry in the following manner (ex-officio):
    i. Chairman Pakistan Software Export Board.
    ii. President Pakistan Association of Software Houses.
    iii. Two representatives from the software industry preferably with a strong academic background.
h. Six members, being computing professionals.

1.6.1 Functions of the Council

a. To organize and carry out a comprehensive program of accreditation of computing programs leading to degrees;
b. The NCEAC shall propose policies, procedures, and criteria or may suggest changes or revisions of the same for Accreditation.
c. The NCEAC shall administer the accreditation process based on the approved policies, procedures, and criteria.
d. The NCEAC shall approve the list of evaluators to participate in the process of accreditation

of academic programs.

e. The NCEAC shall constitute Accreditation Inspection Committee (AIC) for the evaluation of relevant academic programs for accreditation. AIC (to be constituted from the approved list of evaluators) shall make recommendations to NCEAC. The final decision of the accreditation or necessary action will be made by NCEAC.
f. Procedures and decisions on all appeals with respect to accreditation actions shall be the responsibility of the NCEAC.
g. Accreditation decisions will be based exclusively on the suitable criteria, policies, and procedures as approved by NCEAC.
h. To publish a list of Recognized Computing Qualifications/programs.
i. To promote intellectual development and understanding of subject areas that impact accreditation activities in the computing profession;
j. To prepare, print and publish criteria for the teaching of, and training in Computing and its applications;
k. To collect, index and publish information on any or all aspects of computing, its teaching applications, its applications and uses to industry and to maintain or support any library, bureau, database or information system conducive to this end;
l. To select program evaluators (PEs);
m. To train and assess program evaluators (PEs);
n. To assist academic institutions in planning their educational programs for accreditation;
o. To identify to the public, prospective students, student counselors, parents, educational institutions, professional societies, potential employers, governmental agencies, and state licensing or certification boards of specific programs that meet minimum criteria for accreditation.
p. To provide guidance for the improvement of the existing educational programs and development of future programs leading to the computing profession.
q. To stimulate the improvement of computing education in Pakistan.
r. To develop Accreditation Policies and Processes.
s. To develop Guidelines and Procedures for Pes.
t. To develop Guidelines and Procedures for Programs and Institutions.
u. To develop Guidelines for Selection of Evaluators.
v. To identify and develop Guidelines for Ensuring “No Conflict of Interest”.
w. To develop Program Evaluator’s Training Manual Self Study Questionnaire.
x. To develop Forms and Templates.
y. To collect information and statistics on accreditation of higher education of Computing and its respective Institutions as it may deem fit and may cause it published.

1.7 Accreditation Standard Committee (ASC):

The main function of the Accreditation Standard Committee (ASC) is to review reports received from the program evaluators (PEs) after a field visit. The ASC consists of the following members.

All these members are also members of the General Council as mentioned above.

a. The Chairperson
b. The Vice-Chairperson.
c. A Representative of Higher Education Commission (ex-officio).
d. Two Representatives from Software Industry.
e. Six Members of Computing Professionals.

1.8 Program Evaluators

General Council of NCEAC approves PhD qualified professionals/faculty members of computing or related domain as PEs. Program Evaluators have five or more years of post-PhD experience in the field of computing which must include at least three years of teaching experience in a computing program accredited by NCEAC.

Criteria for Selection of new Program Evaluators (PEs):

Each Program Evaluator must have: -

a. PhD degree in computing or a related discipline.
b. At least five years of post-PhD experience.
c. Good professional repute.
d. Taught for at least three years in a NCEAC accredited computing program.
e. Must be residing/working in Pakistan.

In addition, the following should also be made part of the selection criteria/process:

a. **CONVENER** - A program Evaluator qualifies to be appointed as the Convener of the Evaluation Committee if he/she has evaluated at least four programs on behalf of NCEAC.
b. **MEMBER** – NCEAC Approved evaluator

1.9 Types of Accreditation Visits

There are different types of accreditation visits, which are as follows:

a. Zero Visit

Zero Visit is the initial visit under process of accreditation. The Zero visit is highly beneficial for both the institution and NCEAC to know the potential of the institute to run the proposed computing program. Any institute that would like to launch computing program(s) shall apply through online system using approved format for providing information about various facilities including faculty, infrastructure, laboratory, and library. The form and other necessary information regarding zero visit can be obtained from the official website **www.nceac.org.pk** of the Council. Criteria for Zero visit is given in the later part of this manual. However, details about the information which are required to be submitted to the NCEAC are available on the online system.

b. Interim visit

After the successful zero visit and approval of the program by the NCEAC, the institute is required to apply for the interim visit before the end of 2nd year of the program. The Council observes that the last two years of any computing program is crucial, therefore, critical analysis of the program will be required. The main objective of this visit is to evaluate the preparedness of the program for the next stages. The outcome of the interim visit is either to continue with program or stop intake for further batches. However, the existing batches would be allowed to graduate provided the institute fulfils the accreditation requirements as per the established/laid down standards.

c. Accreditation and re-accreditation Visits

Accreditation visit is the final visit to accredit a computing program. It is expected that the institute fulfils all the accreditation requirements mentioned in the online system before the visit is arranged. It is the responsibility of institute to apply for accreditation using online system available **www.nceac.org.pk** when students reach to final year (7th semester). Program seeking accreditation for the first time is required to ensure submission of all required data as per the guidelines given on the above website. A re-accreditation is arranged for program which is already accredited. It is the responsibility of the institute to apply for the re-accreditation before six month of the expiry of the already granted accreditation. Both accreditation and re-accreditation are conducted using same procedure. Criteria for Accreditation visit is given later in this manual.

d. Confirmatory Visit

Confirmatory visit is arranged under special circumstances to urgently address an important shortcoming discovered during the accreditation visit. The visit can also be arranged if the Council observes any major discrepancies in the evaluation reports and rejoinder of the Institute. If an institute has reservations on NCEAC General Council's decision regarding the outcome of their accreditation, then institute can apply for confirmatory visit.

e. Change-of-Scope Visit:

Change-of-Scope Visit (If an institute desires to change the number of intake of a specific program that was accredited by NCEAC then the institute can apply for a Change of scope visit). An accredited program would be required to apply for a Change-of-Scope visit under the following circumstances:

- An increase in the student enrollment.
- Any change which alter the fundamental aspect of the program such as nomenclature of the program, addition of new scheme/specialization, change in the location of the institute and curriculum.

The application for change of scope must be submitted six weeks before the change is required.

1.10 Appeal Cases

In case there any grievances, the Institute has the right to make an appeal to the NCEAC for review. The decision of the General council on the appeal will be considered final.

1.11 Accreditation Fee Structure

Fee structure of various accreditation visits (i.e. zero visit, interim visit, Accreditation visit, Re-Accreditation visit) shall be obtained from the NCEAC. Interested institutes are also advised to check latest fee structure on the official website **www.nceac.org.pk.**

1.12 Status of the Institute Seeking Accreditation for its Computing Programs

Programs will be considered for accreditation if they are offered by an institution of higher learning in one of the following categories:

- Institutions chartered by Federal or Provincial Governments.
- Institutions affiliated by the chartered universities or degree awarding institutions (DAIs).
- Institutions offering degree programs under affiliation/collaboration with foreign universities under the approval from HEC.
- Institutions that operate a branch campus under the direct supervision and control of the main campus, and conduct program that is substantially equivalent to the one located on the main campus.
- When a multi-campus institution presents programs for accreditation, each campus will be considered as a separate institution in the evaluation process.
- Or any other Institute recognized by HEC to offer degree programs.

CHAPTER NO. 2

ACCREDITATION PROCESS

2.1 Introduction

This chapter describes the procedure of accreditation developed by the NCEAC. The process of the accreditation starts with the request by the Institute through online system using prescribed form to upload data. The submission of data by the Institute followed by a comprehensive procedure to complete the entire accreditation cycle. Details on the process of accreditation is given in next few sections. The main event in the accreditation process is the field visit which is sometime referred to as Field Audit Visit. There are different types of visit as mentioned in the last chapter where more or less similar procedure is used to conduct these field visits. However, during zero and interim visits, the main focus is on the potential of the program to grow and continue to produce quality graduates.

a. Field Visit or Filed Audit Visit

A field visit is a comprehensive audit conducted by the AIC of the program which is under the accreditation. The AIC report is the major outcome of the visit that is submitted to the Council for further processing. The report is evaluated by the Accreditation Standard Committee (ASC) to make a final recommendations regarding the accreditation of the program. **(Field Audit Visit Guidelines & Accreditation Guidelines-Concepts attached in Annexure A.)**

b. Online Audit Visit

After the outbreak of the COVID-19 pandemic in the last months of 2019 the educational institutions throughout the world had to shift from face-to-face teaching to online mode, so in Pakistan. The Council, after a lengthy deliberation in few of its meetings, devised a mechanism to conduct online visit of the computing program. Various forms, guidelines and procedures were developed. The policy on the online mode of the accreditation is attached in Annexure B. **(Policy & online visit requirements attached Annexure B.)**

2.2 Online Submission of Application for Accreditation

NCEAC has launched its online Accreditation Automation System (AAS) **(https://accredit.nceac.org.pk/)** for accepting accreditation applications. The AAS is highly flexible and user-friendly system which is available on the url **https://accredit.nceac.org.pk.** All institutes have to submit their accreditation application through online system. No paper based application shall be acceptable anymore. In order to proceed with online accreditation application, an institute needs to have login of AAS System. The institute is required to contact NCEAC for creating login and registration of Focal Person (FP) in the AAS.

After the registration of Focal Person (FP) for the program, he/she will be required to upload application through online system (As mentioned in step no. 2 in the below table). The online application submission is part of the AAS.

The data flow diagram in Figure No. 1 shows all steps required to complete the accreditation process.

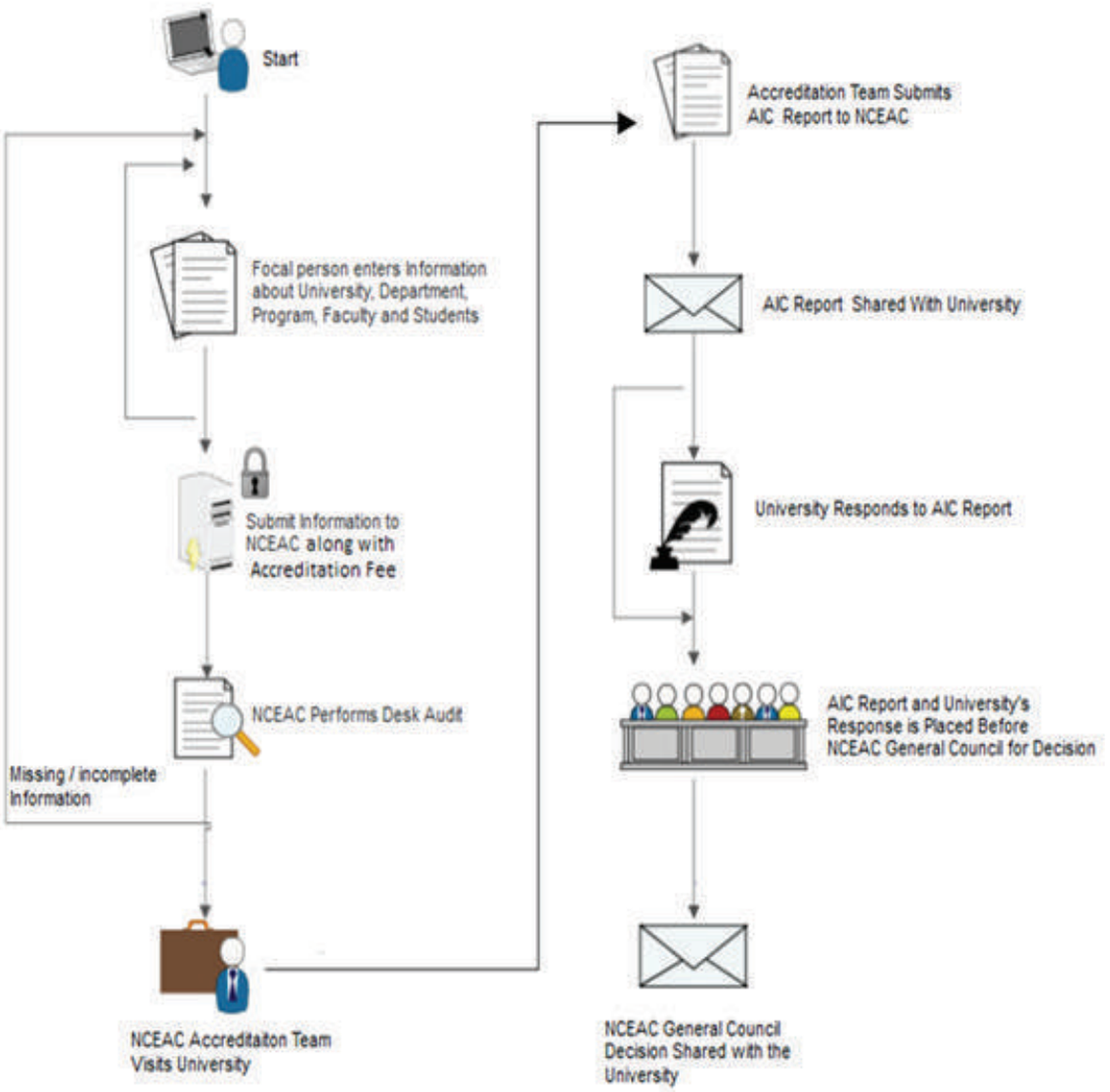

Figure 1. NCEAC Accreditation Process Flow Diagram (AAS)

2.3 Stepwise Process

The diagrammatical procedure as mentioned above is summarized in the below table:

Step#	Description
1	■ Note: The Institutes seeking accreditation shall access the official website **https://accredit.nceac.org.pk/** for registration, creating login user-id and institute profile. During the registration, the institute will appoint a focal person (FP) to complete the entire process of accreditation. The same website/online portal can be used for all types of applications (such as Zero visit, interim visit and accreditation/re-accreditation visit).
2	■ After the successful completion of step 1, the FP shall upload all required information about the program which is under the accreditation process. ■ The FP is required to take extra care to enter information. All information must be certified and a true representation of facilities available for the program at the institute. ■ The outcome of the accreditation process is based on the information provided by institute. ■ The authenticity of the information is validated by the field audit team (inspection committee - AIC).
3	■ NCEAC will perform Desk Audit of submitted application. The institute will be informed about the outcome of the audit. In case the desk audit is successful, the institute will be asked to deposit fee as per the approved rates, otherwise the institute will be informed about the shortcomings.
4	■ NCEAC appoints AIC for the field visit to the institute. Login credentials are created for AIC members. The field visit is performed as per the mutual agreed date between AIC members, NCEAC and the Institute.
5	■ AIC members submit their report online through the evaluator panel. All findings & outcomes of the visit are submitted as per the standard forms.
6	■ NCEAC shares the report online with the respective institute and allows it to submit comments (if any) on the AIC report by the deadline. After the deadline, the 'no comments' will be automatically considered by the system.
7	■ AIC report along with institute's comments (if any) will be placed to the Accreditation Standard Committee (ASC) for final decision. ASC analyzes all cases and makes recommendations for the final approval of the General Council (GC). ■ The above decision/outcome of the accreditation process is shared with the Institute for compliance and implementation.
8	■ After approval of GC, decision will be shared with institute and uploaded to the NCEAC official website.

2.4 Information on the Application

Accreditation of any computing program is a time-consuming job. However, accurate and appropriate information would make the whole process an easy and enjoyable activity. The FP shall require the following information in hand before starting to launch application. It is also important for the FP toconsult the official website of the council for updated information on this matter.

- General Information regarding Institute (Name of the Institute, Sector, Program Name, Faculty etc.).
- Departmental & Program Information (No. of years, credit hours (CrHr), curriculum distribution, Theory contact hours per credit hour per week, Lab contact hour per credit per week, Total number of weeks of teaching per semester/term, Program Goals exists & are documented).
- Financial Information of Programs and Departments.
- Faculty information (No. of core faculty members in the program, No. of core PhD/MS faculty members, Max course load per faculty per year).
- Curriculum on the basis of NCEAC Criteria.
- Students Data (No. of admissions each academic year, admission criteria, No. of sections in each admission batch, No. of students in each admission batch).
- Computing Labs, Logic Design Labs for CS Program, FYP Labs.
- Library Information (No. of computing related books, Access to IEE/ACM, Journals proceedings, No. of Technical Magazines).
- Infrastructure (No. of classrooms, faculty offices, open areas of students, Faculties for outdoor & Indoor Sports, Facilities for hostels, Facilities for Prayer area, Common room).
- Any other information added by the NCEAC to list from time to time.

2.5 Qualifying Requirements

The qualifying requirements are meant to screen out programs that do not meet the core requirements of the assessment criteria. Failure to meet any one of the qualifying requirements may disqualify the program from further assessment/process. There are six components of the qualifying requirements and a program is expected to have all the components. These components are:

a. Applicant institution must satisfy the legal status/requirement of the relevant bodies, specifying the particular legal arrangements as a Charter/Degree Awarding Institution (DAI), Constituent or Affiliated institution, or any other type.

b. A minimum of 130 (CrHrs) as per the NCEAC requirements. These 130 CrHrs must be offered over a period of four years (8 semesters). The HEC criteria for the semester system must be followed.

c. Final year project (minimum 6 Cr Hrs).

d. Full-time computing faculty (minimum of 7) and matching student-faculty ratio of 29:1.
e. Progress on Compliance Report on the last NCEAC-AIC visit observations/General Council decision.
f. Summary of initiatives to adopt Outcome Based Assessment (Program Learning Objectives and Outcomes).

In case of the first accreditation of a new program, the institute should also provide the compliance reports on the Zero/Interim visits.

If a program has met all the qualifying requirements, a detailed assessment of the program based on the accreditation criteria as explained in the relevant sections will be carried out.

2.6 Visit Schedule and date

After Desk audit by NCEAC, Institute proposed multiple possible dates and NCEAC constitutes AIC as per the approved rules. The date of the visit is finalized after the mutual consent of the AIC members, the institute and NCEAC.

2.7 Composition of NCEAC Accreditation Inspection Committee (AIC)

For every visit, NCEAC constitutes an Accreditation Inspection Committee (AIC) to conduct the filed visit and evaluate the program under accreditation. The AIC comprises of the following members:

a. AIC Convener

- Senior and experienced PhD level Program Evaluators are appointed as convener of the AIC. In addition, the AIC Convener is chosen from those who are working in HEC recognized reputed HEI. Normally, an evaluator with PhD in relevant field along with experience of minimum 4 accreditation is appointed as convener of AIC.

b. AIC Member

- NCEAC approved Program Evaluator who is serving in HEI and holding a PhD in relevant field with at least 3 years of Post PhD teaching experience are appointed as member of AIC

c. NCEAC Representative

- NCEAC Representative from NCEAC Secretariat.

2.8 The Role of AIC Convener

The Convener of the Visiting Team has the overall responsibility for the accreditation visit. The Convener assigns duties to each team member keeping in view the overall perspective. He / She should be familiar with the accreditation process and gather in advance the earlier reports, if any. He / She has the responsibility for the preparation of the consolidated team report and its timely submission, for the consideration of the ASC and GC.

2.9 Duration of Visit

Normally, the visiting team requires one whole day on site (field audit visit) to complete the evaluation of a program.

2.10 Plan and Activities on the Visit Day

The Council has already approved a comprehensive plan for the day long visit to cover maximum activities regarding the program under accreditation. However, the AIC can make changes to the order of the activities. The Convener will hold a pre-visit meeting with members in connection with evaluation of the program, preferably in the evening before the day of the evaluation. The meeting should focus on the points of concern noted by the team members and exchange of views on the provided information/AAS Anomaly Reports, and also the progress made on the observations of previous accreditation visit (if any).

The institution shall arrange an exhibit-room for displaying the following documents:

- Samples of minutes of meetings; policy documents; faculty profile; syllabi; research publications; project reports.

Schedule of the Visit

i. Opening meeting with senior administration of the institution;
   - Explain aim of the visit
   - Describe the audit process

ii. Meet Presentation by the Head of the Department of program being evaluated and ensuing discussion;
   - Program Goals
   - Curricula Summary
   - Faculty Summary
   - Student Summary
   - Infrastructure Summary
   - Alumni Summary
   - Q/A

iii. Faculty Meeting;
   - Around 10 min per faculty
   - Graduation
   - Personal Background
   - Area of Interest
   - Perception about the program, Students and peers
   - Opportunities for professional growth
   - Research opportunities
   - Salary perception
   - Teaching Load

iv. Infrastructure Visit;
   - Lab Audit
   - Library
   - Classrooms
   - Faculty Offices

v. Course Audit; (If Institute maintaining the course folders in LMS/CMS then no need to print and make folders. Evaluators will check the same on LMS/CMS)
   - Course File
   - Attendance
   - Teaching Log
   - Examination Record
   - Sessional Record
   - Evaluation Instruments
   - Projects

vi. Prayer + Lunch break

vii. Classroom Visit;
   - Course Two classroom 30 minute each
   - Student Interview
   - Student Assessment
   - Student Perception
   - Student Feedback

viii. Form/Report Filling

ix. Meeting with Dean/Exit Meeting
   - Findings
   - Recommendations

x. Sharing observations (strong and weak areas of the program) with the higher management of the institute.

xi. Final meeting (post-visit) of the AIC members for compilation of Final visit Report.

xii. Submission of final visit report with recommendations through the AAS for further processing of the Council.

2.10.1 Responsibility of the Institute during the Accreditation Process

The process of accreditation initiates after the submitting of the application by the institute to accredit any of its computing degree program. Therefore, the role of institute to conduct a quality accreditation process is vital. This section highlights the responsibility of the institute during the whole process and particularly on the day of the visit.

As mentioned in chapter no. 1 that a focal person is appointed by the institute to coordinate the whole process of accreditation. However, the following other authority at the institute should also

be in picture and should be available to AIC team during the process.

a. Head of the Institute (Vice Chancellor/Rector/Director/Principal)
b. Dean of the Faculty concerned
c. Chairperson (Head of the Program)
d. Director Quality Enhancement Cell or equivalent

Meetings with Top Level Management:

In addition to the meeting of AIC with head of the program, faculty and students, the AIC team would also meet with some other official especially the Head of the Institute, Head of Quality Enhancement Cell and others to know their commitments to the computing programs.

The following are the main responsibilities of the Institute during the accreditation process:

a. To provide accurate and authentic data through the online portal.
b. To make all support documents are available at the time of the visit.
c. To make it sure that all teaching staff especially who have been listed for the accreditation must be present at the campus and available to the team.
d. To make sure that all teaching, non-teaching and students are aware about the visit and their roles to complete the process successfully.
e. To make sure that all logistic arrangements at the institute (if required) are made.
f. To coordinate with the convener of the Accreditation Inspection Committee to make sure all requirements and needs are met for the Program Evaluation.
g. Any other requirements which are communicated to institute by the NCEAC.

Responsibilities of Institutional Stakeholders:

1. Head of Program under accreditation:

The Head of Department has the overall responsibility for the coordination and collaboration of the Institutional stakeholders. Each type of Institutional stakeholders has specific responsibilities. These are presented below:

a. Share, plan, coordinate and involve all faculty, staff and prospective teachers in the activities and tasks of preparations required for the Accreditation visit.
b. Facilitate the Institutional Accreditation Committee for all operative and logistic arrangements for the Accreditation visit.
c. Ensure to prepare/assemble the documents required for the Document Inventory and Document Analysis.
d. Schedule his/her time to participate in Program Evaluation.
e. Ensure the presence of all Teachers, prospective teachers and the support staff.
f. Ensure the appropriate physical conditions and environment for the conduct of tools.
g. Coordinate with the Accreditation Inspection Committee to make sure all requirements and needs are met for the Program Evaluation.

2. The Institutional Accreditation Committee

The Institutional Accreditation Committee is formed to assist the conduct of Program Evaluation and represent the Institutional stakeholders. It is made-up of the Institutions and is headed by the Head of program or his/her nominee. Its key role is to organize and facilitate all preparations and logistics arrangements before, during and, if necessary, after the Program Accreditation.

3. Teachers and Support Staff

The key role of both, the teachers and support staff is to provide reliable and truthful information. They will also cooperate and support the Head of Program in any required logistic arrangements.

Their responsibility during the Program Evaluation is to:

a. Be present in the Institute on Program Evaluation dates.
b. Be open to be interviewed.
c. Professional while providing information to the AIC team.
d. Assist the Head of Program in arranging documents for evidence or collection by the Accreditation Inspection Committee.

4. Representation of Students and Alumni of the Program

The key role of the Institute to confirm the representation of all the students of under evaluated program. This is most essential part of the Accreditation Process. So the Institutes key role is to schedule the classes according to the time table and make sure the availability of students and Alumni.

2.11 Provision for Withdrawal

The institutions have the option to withdraw a program during the accreditation process by a written request to the Convener of Accreditation Inspection Committee (AIC), after being informed of its strengths and weaknesses, but before the AIC holds formal discussion among its members for finalizing its report. However, the accreditation visit fee will be non-refunded. The purpose of this provision is to enable institutions to improve the program quality after making the necessary investments and corrections to overcome the indicated weaknesses, rather than be assigned a 'Not Accredited' status. The institution can apply again for the accreditation of program(s) being withdrawn together with the prescribed fees.

2.12 Reporting by AIC and Grant of Accreditation

a. AIC Report

By the end of the daylong evaluation and visit, the AIC meets the Head of program or Vice Chancellor/Rector to inform him/her about their findings. Subsequently, the committee submits a comprehensive report through the online system. The report is communicated by the NCEAC to the Institute for comments with a deadline. The comments from the Institute if any and evaluation report are placed on the agenda of the ASC meeting.

b. The Role of ASC and GC in the Accreditation Process

The ASC examines AIC report along with the institution comments and recommend the accreditation category. ASC recommendations are submitted to the GC for final approval and endorsement to finalize the category of a proposed Program of Institute.

c. Accreditation Categories

The ASC assigns a category based on the report of the AIC which is endorsed by the GC. The following are various categories which can be assigned by ASC based on the report.

i. Accredited for three batches (maximum):

Programs meeting or exceeding all accreditation criteria, though with some concerns or minor weaknesses. Student cap may be different on the base of report.

ii. Accredited for Two batches:

Programs meeting all the accreditation criteria, but no severe deficiency though may have some major weaknesses / serious concerns. Student cap may be different on the base of report.

iii. Accredited for One batch:

Programs meeting few accreditation criteria, but have severe deficiency though may have some major weaknesses / serious concerns. Student cap may be different on the base of report.

iv. Not Accredited:

Programs not ready for accreditation due to non-conformance to one or more criteria or serious deficiencies in major attributes.

v. Approved:

Programs ready start/continue if, the criteria and major attributes are satisfactory. Student cap may be different on the basis of report. (For Zero/Interim Visit) but normally the Council discourages more than 50 students for any program to start with.

vi. Reject:

Programs not ready start or continue due to non- conformance to one or more criteria or serious deficiencies in major attributes. (For Zero/Interim Visit).

2.13 Awarding Accreditation Letter to Institutes

The category letters issued to the Institutes after the decision of GC. The strength and weaknesses conveyed with the AIC report to Institutes as a guideline for further improvements. The date of expiry also conveyed for Re-Accreditation application. It is mandatory to apply for Re-Accreditation before expiry date.

CHAPTER NO. 3

STANDARDS AND REQUIREMENTS

3.1 Introduction

This chapter describes various standards and requirements for the accreditation of computing programs. As mentioned in previous chapters, the process of the accreditation assures the quality of computing degree programs offered by various universities/DAIs. Therefore, all universities/DAIs who wish to offer computing degree must meet certain defined standards and requirements. The accreditation will be for specific degree programs and not institutions. Moreover, accreditation is not to be confused with a certification. In general, institutions and programs are accredited, and individuals are certified.

3.2 Standards and Requirements

A comprehensive set of standards (given below) has been developed by the NCEAC to facilitate institutes to improve the quality of the computing degree programs. The strengths, weaknesses, and concerns of the program regarding these standards are identified during the accreditation process. Each standard is evaluated based on various requirements. The NCEAC expects that each accredited program must fulfil all these requirements as per the Council criteria.

The Standards are as follows:

Criterion 1 - Admission
Criterion 2 - Students
Criterion 3 - Program Educational Objectives (PEOs)
Criterion 4 - Student Outcomes (SOs)
Criterion 5 - Curriculum
Criterion 6 - Learning Process
Criterion 7 - Faculty
Criterion 8 - Infra structure and facilities
Criterion 9 - Industry Linkages
Criterion 10 - Institutional Support

3.2.1 Criterion 1 – Admission

The admission is one of the important standards which determines the quality of intake of any accredited program. The Head of the program must ensure that there is no violation of any sort while admitting students to a computing program. The following are the essential requirements which should be fulfilled as per the HEC-NCEAC Criteria. All concerned are required to visit the NCEAC official website for further details and updates on the criteria for each requirements.

- Admission Criteria/Requirements:
- Policy and procedure for admission
- Annual intake, batches and number of sections in each batch
- Total Number of students admitted in each batch

3.2.2 Criterion 2 – Students

Under this criteria, various policies regarding the studies of students are evaluated. The following are some of the major parameters that how the program facilitates students during the entire studies.

- Mechanism for assessing student learning at course level and program level
- Prerequisites
- Student/Credit transfer policy
- Student advisement regarding curriculum and career matters
- Policy for awarding credit in lieu of courses

3.2.3 Criterion 3 – Program Educational Objectives (PEOs)

The main target of any quality educational system to ensure that all Program Education Objectives (PEOs) have achieved by the end of the program. The accreditation process certifies that whether the Institute adopted the following policies or not while executing the program.

- There are published program educational objectives (PEOs) consistent with the vision and mission of the institution.
- There exists a mechanism that involves stakeholders in formulation and review of PEOs
- There is a process in place to evaluate the attainment of PEOs through set KPIs.
- There is a process in place for continual improvement of the program through attainment results.

3.2.4 Criterion 4 – Student Outcomes (SOs)

Computing programs prepare students to attain educational objectives by ensuring that students demonstrate achievement of the following outcomes (derived from Graduate Attributes (GA) define by Seoul Accord (SA) **www.seoulaccord.org)**.

a. **Academic Education:** To prepare graduates as computing professionals.
b. **Knowledge for Solving Computing Problems:** An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
c. **Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
d. **Design/ Development of Solutions:** 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 consideration.
e. **Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

f. **Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.

g. **Communication:** 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.

h. **Computing Professionalism and Society:** Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

i. **Ethics:** Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.

j. **Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

3.2.5 Criterion 5 – Curriculum

The crucial part of any degree program is its curriculum. The curriculum determines the academic character of the graduates of the program. Since Computing is an applied program where graduates must be taught skills of international standards, the NCEAC has already designed a comprehensive curriculum which must be followed by each institute seeks accreditation for its computing programs. The following are the major parameters under this criterion:

Curriculum of the program should be as per respective guidelines provided by HEC-NCEAC. The credit hours for the respective computing program should be equal to or greater than 130 and structured on the basis of minimum 4 years duration.

Course will be mapping with CLO. Core Courses with Learning-Levels (Ex. Bloom's Taxonomy), credit hours, contact hours and prerequisites must be followed as NCEAC/HEC defined in curriculum.

Latest Curriculum and archives are available on NCEAC website.

3.2.6 Criterion 6 – Learning Process

A comprehensive learning process must be in place in each university/DAI to make it sure that the students of Computing programs are exposed to complex problems related to applied nature. The following are some of the parameters which can be used to evaluate the effectiveness of the learning process.

The opportunities to invoke problem solving skills through course semester projects as well FYP projects.

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.

Lab work supporting the attainment of the required skills and its assessment mechanism.

- Exposure to cooperative learning through supervised internship program with formal feedback from the employer.

3.2.7 Criterion 7– Faculty

Faculty requirements is the focus of the accreditation process. Qualified and relevant faculty is the primary concern of the council during the entire accreditation process. Detail about the faculty requirements is given below:

a. NCEAC requires seven full-time core computing faculty members to teach four batches (1st, 2nd, 3rd and 4th year). Each batch can have a maximum of 50 students.
b. Of the seven full-time core computing faculty members, at least one must have PhD. The remaining may have PhD or MS as their highest terminal degree.
c. For a brand new program under a newly established department, there must be at least three full-time core computing faculty members at the time of zero visit, including at least one with a PhD degree.
d. For a new program in an existing department that already offers some computing program(s), the following may be used as a guideline for hiring full-time core computing faculty.

1st year only	Minimum two faculty members
1st and 2nd year only	Minimum four faculty members
1st, 2nd and 3rd year only	Minimum six faculty members
1st, 2nd, 3rd and 4th year	Minimum seven faculty members

e. A faculty member shall be counted (as ONE), provided he/she is teaching at least 2 courses (6 contact hours per week) in a semester, or at least 3 courses in an academic year.
f. It may also be noted that overburdened faculty members (teaching more than 3 courses in a semester or six courses in a year) shall be taken as a serious matter by NCEAC, and it may affect the number of batches for which accreditation is given by NCEAC.
g. It is further clarified that faculty course load is determined by counting all the courses taught in BS, MS and PhD programs, taught in computing or other departments. The count also includes courses taught in evening or weekend programs.
h. Any member of visiting faculty shall not be counted as full-time or equivalent to full-time.
i. A new program shall not take/admit more than 50 students per year.
j. A computing practitioner with 16-year computing degree and minimum 3-year industry experience may be hired as a visiting faculty. **(Approved faculty requirements is also attached in Annexure C)**

Computing Faculty Requirements for Accreditation

Dedicated/Fulltime

A faculty member is classified as dedicated/ full-time if he / she has been hired as a regular / full-time faculty member in the department for the given program and teaches full time

in the program under accreditation and does not teach in any other program offered by the same or different department.

Shared

A faculty member is classified as Shared if he/ she is employed full time in a program but also teaches in programs other than the one under accreditation.

Visiting

Teachers, who are not employed by the university on full-time basis but are invited to teach courses in the program under accreditation, are classified as visiting faculty members.

Under Qualified

Faculty members having academic qualification of less than 18 years of education are treated as Under Qualified

Maximum Load of Faculty

Maximum 6 courses per year

Evaluation Criteria Course Load

1. Full Course count as 1 and Lab as 0.5.
2. Course load of faculty teaching in more than one program or institution is separated with '+'.
3. Minimum 3 course load per year is required for Full Time Faculty.
4. Faculty member having less than 18 years of educational qualification and teaching a full course is treated as Under Qualified.

3.2.8 Criterion 8– Infrastructure and facilities

The Council (NCEAC) has defined certain requirements which must be available to the program at the Institute. However, infrastructure is not limited to the requirements given below but university/DAIs can add more to the list.

Classrooms:

- Minimum 3 classrooms per 200 students' batch of 4 sections each of 50 students must be clearly mentioned as the guiding data for the purpose of filling this evaluation form.

Labs:

Following categories of labs will be considered at the time of evaluation:

- General Programming Lab(s)
- Systems Lab(s)

- Hardware Lab(s)

The number of hardware stations available should be 1:3 but 1:5 is also acceptable where students tend to keep laptops.

Library:

- Minimum of 4 computing related books per students should be available.
- At least 5 IEEE/ACM transactions/proceedings should be available in hard copy.
- At least 10 technical Magazines should be available in hard copy.

Other:

- All supporting facilities should also be available.
- It is important to note that the above mentioned minimum eligibility conditions are on the assumption that the program should have single entry admission per academic year.

3.2.9 Criterion 9 – Industry Linkages

Computing is an applied field in nature, therefore, linkages between the program and industry is extremely important. The council developed certain parameters which are listed below must be followed by the program seeking accreditation.

- The Industrial advisory board/committee.
- Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs.
- Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office.
- Design projects sponsored / supervised jointly by Industry Professionals and faculty members.
- Faculty members involved in design / supervision / consultancy role with the industry in the execution of applied research / design projects that are relevant to society / industrial.

3.2.10 Criterion 10 – Institutional Support

The institutional support for any degree program is a key to success for the graduates of the program. Therefore, it is expected that the program is fully supported by the institute using the following standards.

- Institutional support and leadership to assure the quality and continuity of the program.
- Resources (institutional services, financial support, and staff) to provide an environment to which student outcomes can be attained.

Resources (institutional services, financial support, and staff) to attract, retain, and provide for the continued professional development of a qualified faculty.

Resources (institutional services, financial support, and human resources staff) to acquire, maintain, update, and operate infrastructure, facilities and equipment appropriate to the program.

CHAPTER NO. 4

GUIDELINES FOR SELF-ASSESSMENT REPORT

4.1 Introduction (Criteria Verification Form for Accreditation Visit):

This chapter provides guidance to the Institute that how they can evaluate their own status against the requirements of the NCEAC. The chapter also provides useful information about the overall accreditation reporting mechanism. These forms are used by the program evaluators to record all observations and report it to NCEAC.

4.2 Quality ratings awarded to each Criteria

The following are various ratings to evaluate the standard of facilities and procedures to the program such as faculty, labs, library, admission process, etc. Program evaluator's record reasons (if any) with each rating so the Institute can review their statue and compliance to the recommendations. Institutions are strongly advised to make it sure that they have done a complete homework before applying for accreditation.

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 performance.

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

4.3 Report by the Program evaluators

Program evaluator during the visit collect information about all requirements mentioned in previous parts of this manual. After the visit, the program evaluator(s) make(s) recommendations using the following form through the online system.

Undergraduate Degree Program Review Worksheet

Institution:
Program:
Evaluated By:

All sub-components of each criteria is assigned appropriate rating as mentioned in section 4.2 above with comments, if any.

Criterion 1 - Admission

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

Particulars	Quality Rating	Comment
a. Policies for admission to the program meet NCEAC requirements and are enforced. ***Guideline:*** *Minimum 50% Marks in intermediate or equivalent with Mathematics.*		
b. Annual intake in-line with the maximum intake allowed by NCEAC for the program. ***Guideline:*** *Note number of admissions in a year (Fall and Spring).*		
c. Number of sections in each admission batch is sufficient to maintain manageable class sizes. ***Guideline:*** *The maximum allowable class size is 50 students per section depending upon the capacity of class room, available infrastructure, teaching-learning aids, and faculty availability in order to maintain student teacher ratio of 29:1 (200/7)*		

Criterion 2 - Students

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

Particulars	Quality Rating	Comment
a. There exists a mechanism for assessing student learning at course level and program level? ***Guideline:*** *Note the assessment criteria*		
b. Prerequisites are enforced and any waivers are documented.		
c. Policies exist and enforced for accepting transfer of students and transfer of credit hours.		
d. Process in place for student advisement regarding curriculum and career matters.		
e. Policies exist, documented, and enforced for awarding credit in lieu of courses ***Guideline:*** *Note that not granting such credit is an acceptable policy.*		
f. Policies exist and enforced for ensuring and documenting that each graduate meets all program graduation requirements in line with HEC and NCEAC criteria.		

Criterion 3 – Program Educational Objectives (PEOs)

Performance: ***Evaluate the extent to which the program attains the following elements of Criterion 3.***

Particulars	Quality Rating	Comment
a. There are published program educational objectives (PEOs) consistent with the vision and mission of the institution.		
b. There exists a mechanism that involves stakeholders in formulation and review of PEOs.		
c. There is a process in place to evaluate the attainment of PEOs through set KPIs.		
d. There is a process in place for continual improvement of the program through attainment results.		

Criterion 4 - Student Outcomes (SOs)

Performance: ***Evaluate the extent to which the baccalaureate program student outcomes encompass the following elements of Criterion 4: (Required for OBE Accreditation Only)***

Particulars	Quality Rating	Comment
a. Student outcomes are clearly defined, published, and adequate in breadth and depth to encompass all the learned capabilities ***Guideline:*** *Note the SO 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 student outcomes.		
d. There is a documented process for the assessment and evaluation of student outcome attainment? Comment on each of the following SO. ***Guideline:*** *Note the criteria and mechanism (direct or indirect) how SO are evaluated.*		
1. Academic Education: ***Guideline:*** *Completion of an accredited program of study designed to prepare graduates as computing professionals.*		

Particulars	Quality Rating	Comment
2. Knowledge for Solving Computing Problems ***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.*		
3. Problem Analysis ***Guideline:*** *Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.*		
4. Design/ Development of Solutions ***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.*		
5. Modern Tool Usage ***Guideline:*** *Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.*		
6. Individual and Teamwork ***Guideline:*** *Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.*		
7. Communication ***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.*		
8. Computing Professionalism and Society ***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.*		

Particulars	Quality Rating	Comment
9. Ethics ***Guideline:*** *Understand and commit to professional ethics, responsibilities, and norms of professional computing practice.*		
10. Life-long Learning ***Guideline:*** *Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.*		
11. Additional Student Outcomes (if defined for the system) ***Guideline:*** *Program may choose to have additional student outcomes. Rationale and attainment process of such outcomes. Please use additional sheet if required.*		
e. Course outcomes are properly mapped to the student outcomes.		
1. Mapping involves emphasis of each course outcome in student outcomes assessment ***Guideline:*** *each course outcome 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.*		
2. Mapping involves a fair share of Knowledge, Skills and Attributes (KSA) based student outcomes.		
3. Mapping adequately covers all student outcomes, and all assessment methodologies used for the program. ***Guideline:*** *each student outcome should be covered by multiple course outcomes (through multiple courses), that are assessed through different assessment methodologies.*		
4. There is a documented and effective process for review and revision of course outcomes and their mappings.		
5. There is a documented process for assessment and evaluation of course outcomes.		
f. Evaluation results are systematically used as input for the continuous improvement of the program. The process is documented and institutionalized. ***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.***

Particulars	Quality Rating	Comment
a. Curriculum covers required breadth, depth and distribution of the program courses according to HEC and NCEAC guidelines.		
b. Course outcomes defined for all courses with appropriate Learning-Levels (e.g. the ones defined in Bloom's Taxonomy.)		
c. There is formal involvement of industry in curriculum development / revision.		
d. Theory Contact Hours per credit hour per week are appropriate. ***Guideline:*** *1 contact hour per credit hour per week.*		
e. Lab Contact Hour per credit hour per week are appropriate. ***Guideline:*** *3 contact hours per credit hour per week.*		
f. Total number of weeks of teaching per semester/term are sufficient. ***Guideline:*** *No of teaching weeks per semester should not be less than 15*		

Criterion 6 – Learning Process

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

Particulars	Quality Rating	Comment
a. Evidence of exposure to problem based learning and computing solution development.		
1. Sufficient exposure to complex computing problems by semester level projects.		
2. Sufficient exposure to problem based learning by open-ended labs.		
3. Sufficient exposure to computing based solution development by FYP and semester projects in programming courses.		

Particulars	Quality Rating	Comment
b. 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.		
c. Lab work supporting the attainment of the required skills and its assessment mechanism.		
d. Exposure to cooperative learning through supervised internship program with formal feedback from the employer.		

Criterion 7 - Faculty

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

Particulars	Quality Rating	Comment
a. Program headed by a PhD (in relevant discipline) or senior faculty.		
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 full time faculty members (1 Phd+6 MS (18 Yrs.))*		
d. Faculty Teaching workload is justifiable ***Guideline:*** *i. Full-time faculty must teach at least 2 courses (6 contact hours per week) in a semester, or at least 3 courses in an academic year to students of the program under evaluation.* *ii. Faculty members (teaching more than 3 courses in a semester or six courses in a year) shall be taken as a serious matter by NCEAC, and it may affect the number of batches for which accreditation is given by NCEAC.*		

Particulars	Quality Rating	Comment
iii. Faculty course load is determined by counting all the courses taught in BS, MS and PhD programs, taught in computing or other departments. The count also includes courses taught in evening or weekend programs.		
e. Core Faculty Members have PhD/MS qualification. ***Guideline:*** *i. All FMs should preferably hold PhD degree in relevant area, but at least one FM must hold PhD in computing.* *ii. FM without MS degree (earned after 18 years education) in relevant discipline should not be teaching any course.*		
f. Visiting Faculty ***Guideline:*** *i. Teachers, who are not employed by the university on full-time basis but are invited to teach courses in the program under accreditation, are classified as visiting faculty members.* *ii. A computing practitioner with 16-year computing degree and minimum 3-year industry experience may be hired a visiting faculty.* *iii. Any member of visiting faculty shall not be counted as full-time or equivalent to full-time.*		
g. Formal mechanism for faculty training and mentoring on pedagogical skills including OBE concepts and implementation methodologies exist.		
h. Effectiveness of faculty development program to ensure their professional growth and retention.		
i. Young faculty that want to pursue higher studies is facilitated.		
j. Involvement of faculty in research, publications and sponsored projects from industry/donor agencies, etc.		
k. Course folders are maintained as per NCEAC guidelines. ***Guideline:*** *Course folders are acceptable in hard form or in soft form (CMS/LMS).*		
l. Size of faculty offices is appropriate. ***Guideline:*** *Ensure the faculty offices as per prescribed criteria* *i. Minimum 75 Square feet of area per faculty member.* *ii. Not more than two faculty members in a room.*		

Criterion 8 – Infrastructure and Facilities

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

Particulars	Quality Rating	Comment
a. Is Classrooms and laboratories sufficient and appropriate ***Guideline:*** *i. Minimum 3 classrooms for four sections, having not more than 50 students each.* *ii. Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.*		
b. Is computing resources, equipment and software/tool (for laboratories) up to date: ***Guideline:*** *i. Appropriate to the program and to support program needs.* *ii. Available, and systematically maintained and upgraded.* *iii. Appropriate guidance for student usage is available.* *iv. The students to PC ratio should not exceed 5:1.* *v. Lab Manuals.* *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 appropriate information resources to support the scholarly activities of students and faculty, e.g. Library Internet access Professional technical publications. ***Guidelines:*** *i. Library should have minimum of 200 computing unique titles.* *ii. Library should have minimum of 2 computing related books per student.* *iii. Library should have online access to digital computing related books.* *iv. Library should have online access to at least 5 IEEE, ACM etc., journals/ proceedings for students & FMs.*		
f. Adequacy of support facilities such as: *i. Open Areas for Students* *ii. Outdoor & indoor Sports Facilities* *iii. Prayer area (male and female)* *iv. Hostel Facilities (Boys and Girls)* *v. Medical Center* *vi. Transport*		

Criterion 9 - Industrial Linkages

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

Particulars	Quality Rating	Comment
a. Existence of active Industrial Advisory Board/Committee.		
b. Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs.		
c. Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office.		
d. Design projects sponsored / supervised jointly by Industry Professionals and faculty members.		
e. Faculty members involved in design / supervision / consultancy role with the industry in the execution of applied research / design projects that are relevant to society / industrial.		

Criterion 10 - Institutional Support

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

Particulars	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.		

4.4 Summary of the Report

After completion of the reporting/rating of all sub-components of each criteria, the program evaluators evaluate each criteria as whole.

Evaluation Summary		
Criterion	**Quality Rating**	**Comments**
1. Admission		
2. Students		
3. Program Educational Objectives		
4. Student Outcomes		
5. Curriculum		
6. Learning Process		
7. Faculty		
8. Infrastructure and Facilities		
9. Industrial Linkage		
10.Institutional Support		

4.5 Corrective Action on Previous NCEAC Decision

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 findings not yet resolved**

ANNEXURES

Annexure A: Field Audit Guidelines & Accreditation Guidelines-Concepts

Filed Audit Guidelines

DOCUMENTS REQUIRED REGRADING THE COMPUTING PROGRAM UNDER EVALUATION FOR THE ACCERDITATION

The following documentation should be available for the evaluation by the Inspection Committee

Category	Sub Category	Document Required
Program	**Curriculum Documentation**	The respective BS program should be documented in the following manner: a. Program Objective b. Program Structure (Core and Electives) ■ No of Years ■ Total Credit Hours c. Program Requirements-Summary of all required courses d. For each course in program, the following is required: ■ Objectives ■ Structure (Lecture+ Lab) ■ Credit Hours ■ Prerequisite ■ Contents ■ Reference Material ■ (Names, Authors, Publisher, Year, and ISBN for each book used)
	Curriculum Implementation/ Course Folder	A COURSE FOLDER/FILE will be required for each course of the respective program. The following information is to be documented in each folder/file: a. Course Objectives b. Course Contents c. Weekly plan of contents of lectures delivered d. Attendance Record e. Copy of lecture notes f. List of Reference Material g. Copy of assignments, quizzes, midterms and final examinations

Category	Sub Category	Document Required
		h. Model solutions of all assessments tests given in (g) above i. Three sample graded assignments, quizzes, midterms and final examination securing max, min and average marks j. Marks distribution and Grading Model k. Complete result of the course l. Outcomes Assessment m. Detail of technology involved n. Design skills/techniques practiced o. Complete analysis of effectiveness of course and level of silks ensured in: ■ Technology ■ Emerging Development Paradigms ■ Pertaining to Industry ■ Modeling and Design **Lab Component** If course has an additional credit hour pertaining to Lab, then an independent folder/file be maintained to provide the following: a. Lab Objectives b. Lab Contents c. Weekly plan of contents of lab lectures delivered d. Attendance Record e. Copy of material given to students f. List of Reference Material g. Copy of assignments, quizzes, examinations given in lab h. Model solutions of all assessments tests given in lab i. Three sample graded assignments, quizzes, and examination securing max, min and average marks j. Complete result of the lab k. Outcomes Assessment l. Detail of technology involved m. Design skills/techniques practiced n. Complete analysis of effectiveness of lab and level of silks ensured in: ■ Technology ■ Emerging Development Paradigms ■ Pertaining to Industry ■ Modeling and Design

Category	Sub Category	Document Required
Effectiveness of Overall Program		Complete analysis of effectiveness of program and summary of level of silks achieved in the following domain: ■ Technology ■ Emerging Development Paradigms ■ Pertaining to Industry ■ Modeling and Design
Students Evaluation of Course and Instructor		Record of how students have been evaluating both course and instructors in particularly all courses taught by the permanent faculty.
Class Schedule		Complete Academic Year
Lab Schedule		Complete Academic Year
Senior Design/ Graduating Project		Summary of all senior design/graduating projects comprising of the following: ■ Scientific areas/applications covered ■ Emerging Technologies used ■ Correlation with the industrial practices and trends ■ Project Reports ■ Project Demos
Alumni Data Collection		■ Statistics on entry and graduation of all students in the respective program ■ Record regarding placement in industry of graduates from the respective program ■ Record of placement of graduates in international and national universities for higher education
Faculty Contracts		A record of offer/contract letters issued to all permanent faculty members
Admission and Eligibility		■ Admission procedure/policy and eligibility ■ Previous data on admission ■ Student strength and dropout
Annual Budget		A copy of current annual budget

Category	Sub Category	Document Required
Labs		Complete inventory, schedule and relevant manual of all labs relevant to the respective computing program
Rules & Regulations, Statutes and Procedures		All approved rules & regulation including the following: ■ Admissions ■ Registrations ■ Examinations ■ Academic probations ■ Discipline ■ Faculty hiring, evaluation and promotion ■ Revision of curriculum
Financial Profile		A survey of total investments made on the program under evaluation since its inception involving: ■ Human Resource including Faculty Staff, Administrative and Supporting Staff ■ Office Equipment ■ Labs/Technology ■ Infrastructure ■ Library/Books ■ Allied facilities
Meetings/ Minutes		■ BOG Meetings/Syndicate Meetings ■ BOS Meeting ■ Departmental Meeting

Annexure B Policy & Online Visit Requirements

National Computing Education Accreditation Council (NCEAC) Policy
Guidelines for Online Teaching-Learning and Assessment (TLA)
during COVID-19 Pandemic

1. Introduction

Higher Education Commission has allowed Higher Education Institutes (HEIs) to run online classes during the COVID-19 Pandemic. Many institutes has started their online classes during the Spring 2020 session. This policy guidelines will facilitate NCEAC accredited institutes online and blended education mode during outbreak of COVID-19 pandemic. This policy guideline treated as interim guideline which will be exercised during the current situation of the country.

2. General Guidelines

Accreditation of computing programs is used to assure quality in computing degree programs in educational institutions. It would require an educational institution or program to meet certain defined standards or criteria. The accreditation will be for specific for degree programs. During current situation after outbreak of COVID-19 pandemic institutes are shifted on blended/online mode of education. NCEAC must not compromise on the standards of Teaching, Learning and Assessment (TLA) during the online/blended mode of education.

Every university must have a written and approved SOP (Standard Operating Procedure) document from their respective board of studies (department or preferably university). The SOP should encompass the following suggestions to qualify the accreditation standards of NCEAC.

i. **Attainment of Course Learning Outcomes (CLOs):** All HEIs must ensure that each course has a set of learning outcomes. These course learning outcomes must be attained during the online/blended educational mode. All TLA mechanism must be designed in such a way that all the course learning outcomes must be addressed. Conceptual based quizzes, assignments and open book exams through specially designed questionnaire designed by specialized faculty could be used as an alternative. All the process of TLA must be designed in such a way to achieve learning outcomes.

ii. **Lab Work:** Though in computing most of the labs are done on computers and does hardly require additional lab equipment. In case a lab requires some additional hardware (logic design, physics, embedded systems etc.) then concept learning via e- labs or simulated labs can be arranged. But institutes need to arrange the courses in a way that heavily lab based courses (if there are any in a computing program) may not be offered and instead the courses without labs and with labs that can be exclusively performed on computers may only be offered during this scenario. Courses requiring additional equipment may be offered when the normalized educational sessions restores.

iii. **Students' Assessments:** As we all know that students' assessments are core to learning. All HEIs are advised to design/planned courses in such a manner to replace face-to-face TLAs. Assessments should be regularly given during the course of studies in a semester, insuring minimum chances of cheating, they should be checked and managed preferably in a learning management system (LMS) for online evaluation. System controlled MCQs, open book exams, final term projects, quizzes and computer programming based labs should be assigned for assessing students' attainment of learning outcomes during COVID-19 pandemic. A program must substantiate that students are aptly assessed in the semester.

iv. **Students' Engagement:** A program must ensure to reach its all students and maintain the quality of education. Institute must deploy synchronous/asynchronous system to deliver online education. The program must demonstrate that all students attended all lectures and those who could not access the lecture online or CDs were sent to their home addresses. No student should be left out for any reasons for access to the online lecture.

HEIs who opt online education mode during this situation must ensure ready and tested online TLA system. HEIs who started this mode should provide evidences to NCEAC about their online TLA system approved from statutory bodies. Affiliated institutes follow the instructions of their affiliating institute.

3. Essential Requirements

In addition to above mentioned general guidelines institutes should follow the following if opt for online TLA system during this outbreak of COVID-19 pandemic.

i. **IT infrastructure:** The HEIs must have basic secured LMS, Bandwidth and IT Support to enable satisfactory and sustained delivery of online classes while maintain QA processes including time-tables, class held status, students' participation, availability of course material in real time as well as in recorded fashion (synchronous/ asynchronous mode).

ii. **Class size:** Online class size should be equal to original class size and not be greater than 50. This flexibility is extended in order to accommodate appropriate number of students/sections in parallel sessions which will require sufficient bandwidth.

iii. **Content Delivery:** Faculty must be trained and assessed by a senior committee formed within the HEI to deliver courses online properly including handling of basic IT principles, for example, audio, video and sharing of screens and materials.

iv. **Contact Hours:** Contact hours during online TLA may be considered less. It was suggested that institutes may upload video lectures (1.5 Credit Hours) on LMS before time and then discuss the same (1.5 Credit Hours) during online session. So it will count as 3 Credit Hours. Or other institutions may offer live lecturing while students are attending online and engaged in discussions and question answers. The recorded lectures shall also be uploaded on internet for later review and compliance.

v. **Attendance:** HEIs are responsible to introduce suitable monitoring & feedback evaluation mechanism to record/ log students' participation and time spent on course Platforms. This may include off-line listening to recorded lectures and timely addressing assignments etc.

vi. **Assessments and Quizzes:** Assessments, number of quizzes and type of assignments must be innovative enough to cover Learning Outcomes of the courses appropriately. They should be assessed on time and the assessments must be shared with students online. The results and evidence must be maintained by the HEIs for record.

vii. **Final Year Project (FYP):** For NCEAC accredited programs, FYP projects can be conducted/considered utilizing appropriate modern tool usage and technologies.

viii. **Grading:** In order to cater for the circumstances that the partial assessments through assignments, quizzes, exams are conducted in virtual environment, it is therefore, proposed that relative grading system within class may be adopted to avoid any discrepancy for those students who are not well versed with this new paradigm of implementing TLA for the time being.

ix. **Quality Assurance:** HEIs will be responsible to record all evidence of class delivery, assignments and quizzes of all online courses. All approvals of the conduct of online classes will be subjected to a confirmation of the HEI Online Coordination/Quality Committee responsible for training and assessment of the course instructor. Evidence to this effect will also be made available to NCEAC as and when required. The entire QMS/LMS be shared with NCEAC as advised in General Guideline above after internal review mechanism by the Online Coordination/Quality Committee.

x. **Practical Labs:** Lab-intensive courses, where labs are to be conducted on specialized HW, can be replaced later when the situation permits/normalizes to demonstrate. Universities may defer practical component of such labs courses in-line with general guidelines.

xi **Acceptability and Accessibility:** Feedback of students for a guided response to motivate them for online TLA be exercised to a reasonable sample of enrolled students in a program. Students are more conscious about well-preparedness/ delivery mechanism to be ensured from the internal QMS/LMS system and capacity building of concerned faculty to respond students' questions and interactive engagement.

Those students who cannot attend due to unavailability of internet in their homes, the institute shall device mechanism of sending these students all recorded lectures and reference materials on CDs/ USBs at some periodic intervals in time.

In order to ensure student accessibility, all lectures and course material must be available online in recorded format as well to the students (synchronous/ asynchronous mode). Still, if a student wants to withdraw based on inaccessibility or any other inability, he/she may be allowed to do so, without having any adverse impact on the promotion of the student, provided a minimum of 2.0/4.0 CGPA is maintained. In such a case, the course(s) will be treated as "freezed" and no fee shall be charged by the HEI for re-enrolment at a later stage for the students who are interrupted in an ongoing semester.

4. Accreditation:

Documents submitted by HEIs will be evaluated in two phases for the purpose of granting provisional accreditation followed by a normal accreditation mode reference to the following two conditions elaborated as under:

a. If an institute is already accredited and apply for reaccreditation and its final year batch is yet not accredited then NCEAC will conduct accreditation visit online.

b. If an institute is not already accredited but applied for accreditation then NCEAC will not conduct accreditation visit online and wait for the situation to be normalized.

Phase-I: Provisional grant of accreditation for graduating batch only through preliminary desk review by Accreditation Standard Committee (ASC) based on its previous accreditation history and general compliance level of the program provided no deficiency is reported.

Phase-II (Physical visit): Execution of normal accreditation in physical mode after normalization of the lockdown situation.

OR

Phase-II (online): NCEAC to assign an accreditation team to perform online accreditation by assessing attainment on all the criteria online. The institute opting for virtual accreditation must have the following:

c. An approved SOP for online teaching aligned with the guidelines provided by HEC and NCEAC.

d. Adoption of an LMS and access to LMS to evaluators for reviewing course folders, quizzes, exams, projects, online lectures.

e. Online interviews with the students, faculty members, administration, alumina and employers.

f. Online access to all the information that is required for accreditation of computing programs.

5. Validity

The above General Guidelines and Essential Requirements are the guiding principles to be applicable to all NCEAC accredited programs with effect from the stipulated date/schedule for an HEI opting paradigm of online TLA system in intimation to NCEAC/HEC until the COVID-19 pandemic is under adequate control by the respective Provincial and Federal Government of Pakistan.

Online Visit Requirements

1. Access to the LMS (very important)
2. Access to Student Data
3. Access to Faculty data
4. Access to minutes of all statutory bodies such as BoS, BoF and Academic Council.
5. Timetable/ Classes schedule (online or offline)
6. Academic Calendar

7. Access to Lab Manual or upload Lab manuals
8. Transcripts (randomly selected)
9. Access to marked/checked Answer sheets

Annexure C: Approved Faculty Requirements

Computing Faculty Requirements for Accreditation

Dedicated/Fulltime

A faculty member is classified as dedicated/ full-time if he / she has been hired as a regular / full-time faculty member in the department for the given program and teaches full time in the program under accreditation and does not teach in any other program offered by the same or different department.

Shared

A faculty member is classified as Shared if he/ she is employed full time in a program but also teaches in programs other than the one under accreditation.

Visiting

Teachers, who are not employed by the university on full-time basis but are invited to teach courses in the program under accreditation, are classified as visiting faculty members.

Under Qualified

Faculty members having academic qualification of less than 18 years of education are treated as Under Qualified.

Maximum Load of Faculty

Maximum 6 courses per year

Evaluation Criteria Course Load

1. Full Course count as 1 and Lab as 0.5
2. Course load of faculty teaching in more than one program or institution is separated with '+'
3. Minimum 3 course load per year is required for Full Time Faculty
4. Faculty member having less than 18 years of educational qualification and teaching a full course is treated as Under Qualified

Accreditation Requirements Regarding Faculty

1. NCEAC requires seven full-time core computing faculty members to teach four batches (1st, 2nd, 3rd and 4th year). Each batch can have a maximum of 50 students.
2. Of the seven full-time core computing faculty members, at least one must have PhD. The remaining may have PhD or MS as their highest terminal degree.
3. For a brand new program under a newly established department, there must be at least three full-time core computing faculty members at the time of zero visit, including at least one with a PhD degree.
4. For a new program in an existing department that already offers some computing program(s), the following may be used as a guideline for hiring full-time core computing faculty.

1st year only	Minimum two faculty members
1st and 2nd year only	Minimum four faculty members
1st, 2nd and 3rd year only	Minimum six faculty members
1st, 2nd, 3rd and 4th year	Minimum seven faculty members

5. A faculty member shall be counted (as ONE), provided he/she is teaching at least 2 courses (6 contact hours per week) in a semester, or at least 3 courses in an academic year.
6. It may also be noted that overloaded faculty members (teaching more than 3 courses in a semester or six courses in a year) shall be taken as a serious matter by NCEAC, and it may affect the number of batches for which accreditation is given by NCEAC.
7. It is further clarified that faculty course load is determined by counting all the courses taught in BS, MS and PhD programs, taught in computing or other departments. The count also includes courses taught in evening or weekend programs.
8. Any member of visiting faculty shall not be counted as full-time or equivalent to full-time.
9. A new program shall not take more than 50 students per year.
10. A computing practitioner with 16-year computing degree and minimum 3-year industry experience may be hired a visiting faculty.

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