

STANDARD OPERATING PROCEDURES FOR CURRICULUM DEVELOPMENT AND REVIEW

Procedures For

- **Curriculum Development Process**
- **Curriculum Review Process**

PROCEDURES FOR CURRICULUM DEVELOPMENT AND REVIEW COMMITTEE (CDRC)

REVISION HISTORY

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1. PURPOSE

Curriculum plays a strategic role in realizing the Mission of the institution. The strategic importance of curriculum lies in the fact that it is the one that realizes the purpose and values of learning in an institution. It is through curriculum where learners are analyzed versus competence required for the respective work context and level. The subjects and their contents are also identified within the curriculum to support achieving the desired competencies. Subsequently, curriculum decides on the activities, methods and media for teaching and learning, and gives provision on how assessment will be done and overall effectiveness of the delivery will be evaluated.

A properly prepared curriculum refers to all the teaching and learning activities and experiences that are provided by a technical institution with adequate reflection of the needs and interests of learners, the technical institution, the employers, the profession, the society, the Government, and the economy. It is through the implementation of such curriculum that learners will be able to meet the respective Qualification Standards set for the various levels of the NCAAE and other academic organizations.

2. SCOPE

This document, “Procedures for Curriculum Development and Review” is intended to provide the required framework to guide the actual process of developing or reviewing a curriculum based on market demand. After developing or reviewing a curriculum in line with the provisions in the present document, the same has to be approved and validated through the relevant validation procedures.

3. DEFINITIONS

- **Capability**

Capability is in essence a combination of knowledge understanding and skills, usually in a particular field of activity.

- **Competence**

Competence is associated with clear ability to successfully carry out some occupational activity and it is described in terms of “skills”, “knowledge”, and “aptitude or understanding”.

- **Course**

Means a course as approved by the Council and leading to award of the Council. It is essentially synonymous to a learning program.

- **Course Module**

A course module (or simply a module) is a set of learning outcomes (professional competencies) that has been pedagogically structured to respond to a meaningful stage of the work process, to represent a meaningful phase of the learning process, and to constitute the basic units for evaluation.

- **Credit**

A Credit is an instrument for measuring and expressing learning equivalence.

- **Curriculum**

Curriculum is a teaching and learning experiences taking place in learning institution and includes the aims and objectives of learning, what is taught, provided in terms of learning outcomes for realization of target qualification.

- **Curriculum Renew**

Curriculum Renew is a process of *making* an old curriculum *anew*. It involves *realization of the interventions* qualified during curriculum review.

- **Curriculum Review**

Curriculum Review is a process of *assessing* implementation of an old curriculum to confirm its present and future validity. It involves *qualifying required interventions* in the curriculum for meeting the present and future market demands. It is a basis for curriculum renew.

- **Enabling Learning Outcomes (Enabling Outcomes)**
Enabling Outcomes are outcomes that enable the achievement of higher-level Principal Outcomes.
- **Syllabus**
Syllabus is a documentation of module or subject contents, what is taught, provided in terms of learning outcomes for realization of target qualification requirements.

4. ROLES AND RESPONSIBILITIES

Following are the responsibilities of the CRDC committee:

- Preparation and review of Course Descriptions & Course Specification with the help of Course Coordinators and Track leaders.
- To review and recommend to the department council on existing and proposed curricula, courses, prerequisites, co-requisites, advisories and programs;
- Periodically review and enhance the learning objective and outcomes of the program and courses to make sure that they coincide the needs of job market and accreditation bodies.
- Make sure that textbooks references, lab manuals of all courses are current and up to date and periodically reviewed.
- Development of new curriculum based on industry requirements and review of existing curriculum (if any).
- Benchmarking of courses with local and international universities while designing and reviewing the curriculum
- Consideration of JU program designing guidelines, NCAAA, ABET and ACM Guidelines any other relevant body while reviewing the current curriculum or designing the new curriculum.
- Consideration of human, technological and learning resources availability and planning for future requirements if any.
- To solicit and review the expert opinion from different stakeholders in review and development of Curriculum plan and contents
- Preparing documents and supports department in review and approval of current as well proposed curriculum.
- Ensure the Teaching Plan is prepared and delivered timely according to the approved academic calendar with the help of Course Coordinators and Track leaders.

Members:

1. Head – CEO or any other members appointed by HoD
2. Track Leaders

3. External subject experts if any
4. Any other member appointed by HoD

Following are the supporting committees that will be reviewing and providing necessary feedback during the curriculum development and review process.

Program Advisory Board

Responsibilities:

1. Assess the current program and ensure that it's up to date and serving the requirements of industry and following the standard guidelines of relevant professional bodies.
2. Advise about required attributes, skills and suitable outcomes for the pass out students necessary for their success.
3. Help the program / department in assessing the job market requirements and provide suggestion for improvement in the program based on these requirements.
4. Provide advice on the technological trends and changes in industry
5. Provide advice on opportunities to introduce new programs in response to the needs of a specific profession, industry or sector
6. Promote good relationships with local community and businesses, industry and professional associations
7. Periodically (semester wise / yearly) review the outcomes, enrollment data, services and support facilities and progress of the program
8. Provide support and assistance in the development of new programs and its review process.
9. Assist in training and placement of graduates.

Members:

1. Head of Department
2. Head of Program Assessment Committee
3. Vice Dean of Academic Development
4. At least one HoD from other related department
5. Program Quality Coordinator
6. Members from Industry (Employers)

Program Assessment Committee (PAC)

Responsibilities:

- To develop, administer and follow up the processes of Quality Control in the Department.
- To follow up and select the benchmarks of the Department Program.
- To supervise and follow up the schemes for development and future planning in the Department.
- To review and approve assessment and action plans from departments and programs.
- To verify implementation of approved assessment and action plans.
- To receive and review annual progress reports based on the progress of action plan and activities of various committees.
- Monitoring the achievements of Program Learning Outcomes (PLOs) and Program Educational Objectives (PEOs).
- Monitoring the various feedbacks received from various stakeholders and plan activities accordingly.
- Advising the department in the review process of programs (s).
- Provides assessment training and dissemination of assessment information.
- Provides support for development, implementation and evaluation of current and proposed programs.
- Ensure that the program meets its stated mission and addresses the strategic direction of the college.
- Appraisal of faculty members based on defined tasks and guidelines by the department.
- Selection of Track -Leaders and Course Coordinators for next semester.

Members:

1. Head - HoD or person nominated by HoD
2. Coordinators for all locations including female campus apart from Main Campus
3. Head of Curriculum Review Committee (CRC)
4. Head of Strategic Planning Committee
5. Head Research Unit
6. Program Quality Coordinators of all campuses (male and female)
7. Any other member nominated by HoD

5. PROCEDURE

5.1 FRAMEWORK FOR CURRICULUM DEVELOPMENT PROCESS AND PROCESS FLOW

5.1.1 The Actual Curriculum Development Process

Curriculum development implies, amongst other things, familiarization with the relevant NCAAE Qualification Standards and subsequent identification of curriculum contents and strategies. NCAAE Qualification Standards prescribe purpose(s) of particular qualification, principal learning outcomes for realization of the purpose(s) and associated credit guidelines and assessment criteria. On the other hand, identification of appropriate curriculum contents, i.e. learning outcomes and strategies that will enable realization of the principal outcomes and purposes of qualification is done following specific steps as shown in Fig. 1 and elaborated in subsequent sub-sections.

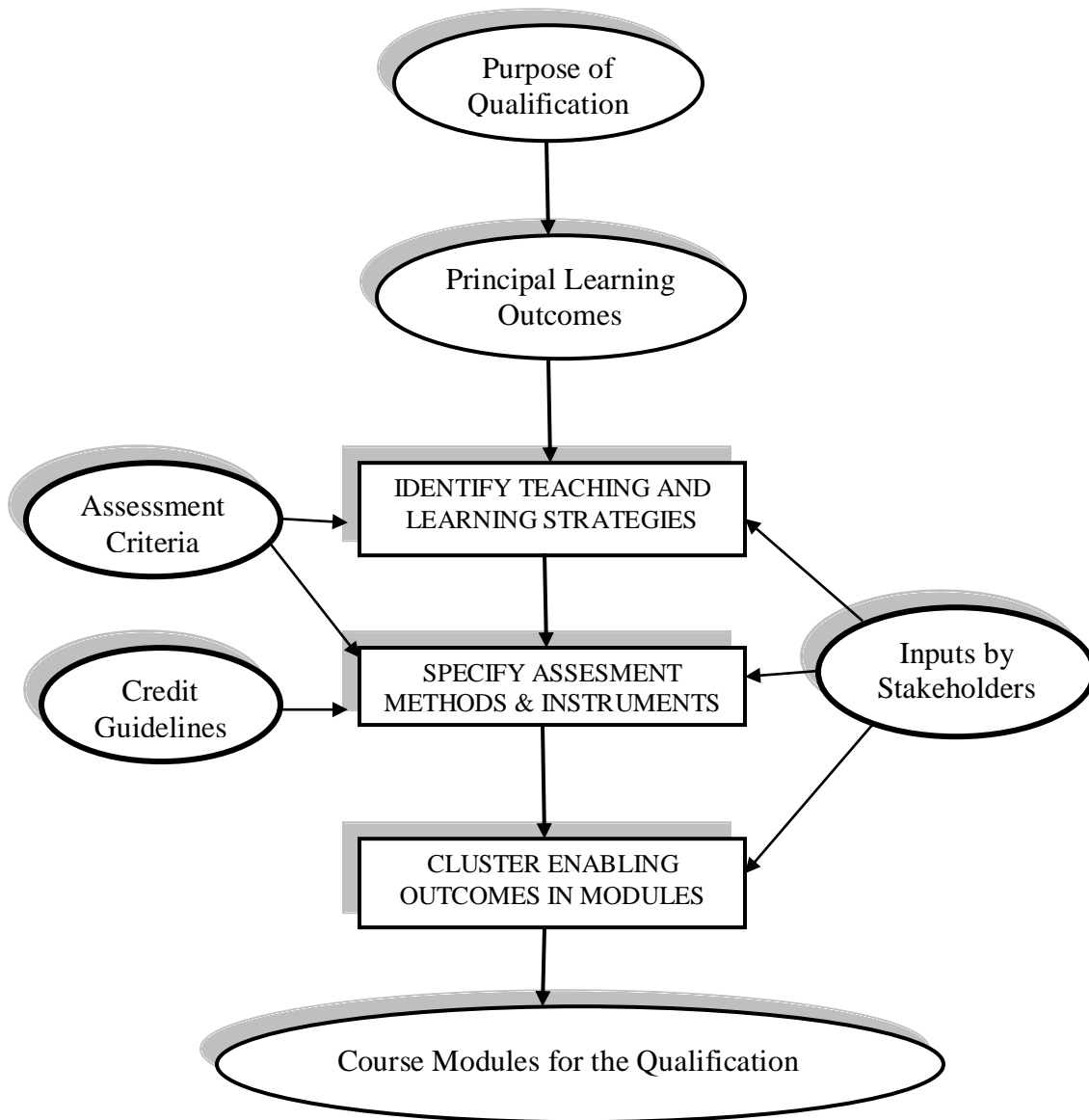


Fig 1: Key steps constituting Actual Curriculum Development Process

As it is seen in Fig. 1 above, having clarified the principal outcomes as required by the NCAAE Standards for a particular qualification, the first step in the actual curriculum development process is to identify the enabling outcomes. Specifically, enabling outcomes shall have the following key features:

- Represent integration of student's knowledge, skills and understanding in a complex role;
- Represent performance required of learners in their personal or professional lives after graduation;
- Clearly describe what a student will be able to do with what they have learned in a course module, or in the whole training program.
- Are verifiable, assessable and public

Hence, enabling outcomes, whether at the training program level or at the level of course module should facilitate effective teaching and learning in a number of ways:

- a. The learner should be clear as to what is expected in terms of learning and assessment of learning; this can facilitate the learner becoming an active player in the learning process;
- b. The process of writing statements on enabling outcomes should encourage reflection on the question: "What do I want learners to be able to do at the end with what they have learned in meeting the Qualification Standard?"
- c. From the technical institution's perspective, having enabling outcomes reconciled with course modules is a critical issue. It facilitates clear awareness to the students, teaching staff and other interested parties of what outcomes (competencies) should be pre-requisites for taking a module, what should/could be taught in concurrent course modules, and what should be learnt in future;
- d. Writing outcomes statements that focus on how students will use what they have learned can provide clues as to integrative student assessment strategies;
- e. Articulating enabling outcomes as indicated in (a) to (d) above facilitate rational curriculum development/review with the end in mind, minimizing unnecessary overlaps and duplication,

and avoiding gaps. It is only this way one can ensure an efficient curriculum and that which comply with the standards.

5.1.2 Putting in Specific Curriculum Needs

Specific curriculum needs refer to the abilities to *do* a set of tasks, to *understand* the theory underpinning the tasks and the ability to *pass reasoned judgment* on different ways to do the tasks. It is clear from above that a specific curriculum need has three sub-competencies: Practical competence, Foundational competence and reflexive competence.

While practical competence refers to the *ability to do* a set of tasks.

Foundation competence is described by the demonstrated *understanding* of what one is doing and why.

Reflexive competence refers to the ability to *learn from one's actions and to adapt to changes and unforeseen circumstances*. In enabling outcomes, the attributes of the three sub-competencies are described as follows:

- *Doing* a set of tasks is used to indicate a skill and is described with action verbs such as: *perform, demonstrate, etc.* a set of tasks. In this case the learner is not required to understand the processes by which one does a task;
- *Understanding* is represented by verbs that refer to grasping of concepts and being able to use them creatively. Such verbs include: *find, analyze and synthesize, etc;* and
- *Passing judgment* is represented by phrases such as: *pass judgment on, make reasoned changes, evaluate, critique, suggest a way forward, etc.*

5.1.3 Incorporating Generic Curriculum Needs

Generic curriculum needs are technical education and training qualities that must be developed in all learners regardless of the specific area or content of learning, in order to facilitate life-long learning within and across fields. These cross cutting issues also cover many of the desired workplace attitudes and life skills characterized by cognitive, affective and psychomotor domains necessary for success in one's life

within the modern global economies. Enabling outcomes should therefore also include some or all of generic curriculum needs which include ability to do the following:

Identify and solve problems in which responses display that responsible decisions using creative and critical thinking have been made;

- Demonstrate an understanding of the world as a set of related systems by recognizing that problem solving contexts do not exist in isolation;
- Being culturally and aesthetically sensitive across a range of social contexts;
- Develop successful entrepreneurial opportunities;
- Collect, analyze, organize and critically evaluate information;
- Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation;
- Work effectively with others as a member of a team, organization, and community;
- Organize and manage oneself and one's activities responsibly and effectively;
- Show responsibility towards the environment and health of others;
- Demonstrate cultural sensitivity across a range of social contexts;
- Explore education and career opportunities and reflect on and explore a variety of strategies to learn more effectively.

5.1.3 Considering various accreditation agencies requirements in the field of study

While developing a new curriculum or modifying the existing one various accreditation agencies and organizations working in order to standardize the field need to be taken into consideration. In the field of computing major organizations are ACM, ABET, NCAAE and SAQF.

5.1.4 Putting in Competitive Advantage

Competitive advantage must be incorporated in the enabling environment to ensure that students who qualify at a technical institution are better equipped for their carrier than students who graduated from other institutions. To a greater extent this is going to be influenced by the vision and mission of a institution. However, the following are recommended for consideration:

- Curriculum and hence enabling outcomes should address the needs of respective professional bodies. This will ensure that the learners can be admitted to such bodies, upon graduation, or simply be successful in respective careers for cases when a professional body is not a registering organ;
- Cutting edge technologies/processes/methods, as the case may be, and future trends are identified and clearly reflected in the enabling outcomes; and
- Institutional teaching and research focus, where applicable, are identified and evident in the curriculum.

5.1.5 Developing Tasks to Realize Enabling Outcomes

Curriculum development process described so far has been involved mainly with the formulation of enabling outcomes, which enable learners to achieve the qualification outcomes. The outcomes will not, however, state what learners would be doing in order to show that they could achieve these outcomes.

For technical education and training, tasks to be developed to translate the enabling outcomes should:

- As much as possible relate to the situation expected at relevant workplace after graduation;
- Include assessment criteria that also relate to the workplace roles;
- Promote reasonable multi-discipline, in order to facilitate life-long learning within and across fields, which is necessary for success in modern global economy; and
- Provide the context for learners to achieve the enabling outcome of the curriculum.

5.1.6 Formulation of Teaching and Learning Strategies

After establishing enabling outcomes and respective tasks, curriculum developers should indicate how these could be realized. Realization of enabling outcomes can be through lectures, independent work, tutorial sessions, seminars, laboratory work, training workshop activities, field-work (real work practice), or combination thereof. Appropriate learning aids including textbooks and other references, as well as any other special facilities should also be identified for each enabling outcome and clearly specified.

5.2 Assignment of Credits

An academic *credit* is fundamentally a tool for measuring and expressing learning equivalence. A credit plays an important role in rewarding the incremental progress of learners, facilitating student transfer, recognizing prior learning and contributing to the definition of academic standards. The number of credits awarded for successful completion of a module is called *credit value* of the module for that particular study level. In order to earn module credits at a particular level, the learner must satisfy the assessment criteria for all (or the majority) of the designated learning outcomes of the module.

5.3 Procedure for Specification of Criteria and Methods of Assessment

The criteria of assessment are statements that clearly indicate what learners are expected to do in order to demonstrate that they have successfully realized a learning outcome (completed a curriculum task). They are required mainly to assist the examiners and moderators to check that the assessment is compliant with the standards set in the qualification. Course Committee following NCAAE guidelines shall therefore formulate assessment criteria for each enabling outcome to reflect that, as a result, learners can perform (do) something, can understand what they are doing and why they are doing it, and can connect these two as application of knowledge and, furthermore, can pass judgment on performance.

5.3.1 Assessment should be an integrated undertaking

It is important that tasks from both cross cutting curriculum issues, applied competence and those reflecting competitive edge should be assessed, and a variety of assessment methods and instruments are used. In doing so, one should ensure that the chosen method(s) and instrument(s) are fair, reliable, valid, and practical.

5.3.2 Assessment should recognize achievements

Assess what the learner knows and can do against approved criteria and benchmark. In line with the assessment benchmark, ensure that a learner has achieved all (or the majority) of the designated learning outcomes of the module before he or she gets a credit for the module.

5.3.3 Assessment should recognize prior learning

Allow for accelerated access to further learning and give credit to evidence of learning outcomes that have already been acquired in different ways.

5.3.4 Legitimacy, transparency and clarity

Assessment should emphasize legitimacy and transparency and clarity on what the learner is expected to achieve, what assessment method and instrument will be used to assess achievement, what the learner will have to do to show achievement, how it will be assessed, the conditions under which or the situation in which the assessment will take place and when the assessment will take place. As assessment is central to recognition of achievement, therefore, the quality of that assessment is important in order to provide credible certification.

5.4 MODALITIES FOR REVIEW OF CURRICULA

Based on the evaluation of the performance indicators, as a result of continuous monitoring of curriculum implementation as described in the NCAAE document, evaluation of feedback from stakeholders via situation analysis; curriculum need to be updated to satisfy current demands.

5.4.1 Interrelation of Curriculum Review and Evaluation Tasks

Key features of a system for routine and periodic review and evaluation of curriculum are demonstrated in Fig. 3, which also indicates the major tasks and their interrelations. The line activities include assessment of curriculum implementation leading to identification of needs for curriculum review, qualification of the necessary interventions, and curriculum renew.

5.4.2 Assessment of Curriculum Implementation

As it seen in Fig. 3, a technical institution should be able to evaluate implementation of its curriculum. Only this way it will be possible to identify the need for review of curriculum. The performance indicators should be of help in that respect.

Also refer to Curriculum Evaluation Questionnaire (APPENDIX A)

5.4.3 Qualification of Needs for Curriculum Review

Once the need for curriculum review is clear, which shall be demonstrated by the gap between what the performance indicators are showing and the targeted values, one will need to clearly identify the required intervention. Curriculum review could therefore be either for the purpose of:

Improvement of competencies, in order to be in line with revised competence standards or other NCAAE norms;

- Improvement of competencies, in order to attain competitive edge;
- Ensuring flexibility of curriculum in response to modern socio-economical trends;
- Rationalizing efficiency in curriculum implementation; or
- Any combination thereof.

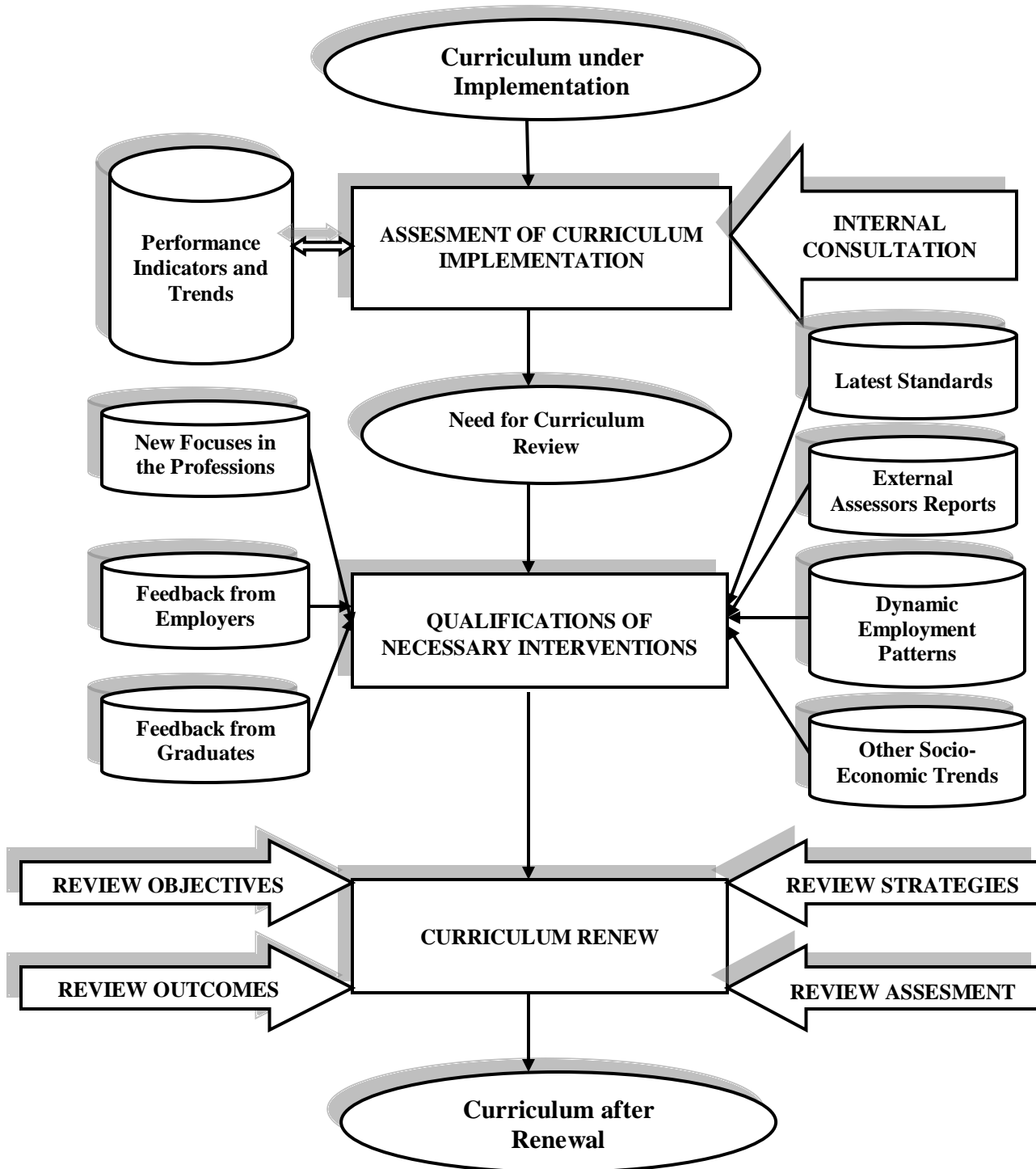


Figure 3 : A System for Curriculum Review



As it clearly seen in Fig. 3, curriculum review and evaluation essentially involve ascertaining the quality of a given curriculum. That is, the value or worth of a curriculum, in terms of curriculum inputs, processes, outputs and outcomes in line with *current needs* of employers, the profession, the graduates and society at large, as well as *current NCAAE norms*. The ultimate goal is to *renew* the curriculum.

5.5 PROCEDURE FOR REVIEW AND EVALUATION OF CURRICULUM

5.5.1 Routine Review of Curriculum

Curriculum should continuously be reviewed and evaluated throughout the period of implementation. Specifically this should be done as follows:

(a) Assessment of Performance in Curriculum Implementation

- i. Except for standardized performance indicators or those with targets that are widely acceptable (e.g. student/staff ratio, library floor space per student, etc), it is the responsibility of CDRC to quantify target values for all other relevant performance indicators. This can better be realized through a consultative approach involving those who are implementing the curriculum, other specialists in the subject of the curriculum, educationist and the owners of the institution.
- ii. Coordinator for Curriculum Development in a technical institution shall maintain reliable records of actual performance in curriculum implementation, using same indicators as described by the NCAAE.
- iii. CDRC shall assess performance in curriculum implementation by comparing the actual and target figures of similar performance indicators.
- iv. If significant deviations are observed between the actual indicators with targets for a reasonable period of time showing a clear trend it is a sign of needs for curriculum review. CDRC shall confirm and qualify such needs.

(b) Qualification of Needs for Routine Curriculum Review

In qualification of needs for routine curriculum review CDRC shall confirm:

- i. Nature of the needs, that is whether the required improvement is on mandatory or optional competencies, or on teaching and learning strategies, or on rationalizing efficiency in curriculum implementation;
- ii. Scope of the needs whether the required improvement affects the whole curriculum or only a number of modules, whether the required improvements can be effected without extensive research undertaking;

- iii. In case there would be a need to conduct research work to confirm certain trends, the CDRC shall arrange to facilitate that.

The first confirmation is necessary to know the direction of curriculum renew, while the second and third shall determine whether the improvements can be immediately implemented or should await the outcome of periodic review. It is the duty of CDRC to make this decision.

(c) Curriculum Renew

- i. If has deliberated to implement the improvements, either in the whole curriculum or part thereof (i.e. in a module only) the curriculum renew process should be planned.
- ii. Situation Analysis, if necessary, shall be conducted also in accordance with the relevant NCAAE modalities.
- iii. Actual renew of curriculum, i.e. improvement in either learning outcomes, or learning strategies, or assessment criteria and methods, covering the whole curriculum or part thereof (i.e. a module or a couple of modules) shall be done in accordance with the relevant provisions.
- iv. Approval of renewed curriculum shall follow the relevant provisions.

5.5.2 Periodic Review of Curriculum

Apart from the regular reviews indicated above, it is necessary to conduct more comprehensive review after a certain period has elapsed. This type of review will provide more realistic trends of the deficiencies, if any.

For this purpose, all curricula, irrespective of the routine reviews, should be evaluated after every specified time interval. This duration is considered long enough to provide realistic trends, and short enough not to allow unbearable deviations.

Specifically the periodic review should be done as follows:

(a) Qualification of Needs of Periodic Curriculum Review

In qualification of needs for periodic curriculum review CDRC shall conduct situation analysis to confirm current and future needs of employers, the profession, graduates, society and other stakeholders.

(b) Curriculum Renew

- i. CDRC shall plan the curriculum renew process.
- ii. Situation Analysis should be conducted in accordance with the relevant provisions.

- iii. Actual renew of curriculum, i.e. improvement in either learning outcomes, or learning strategies, or assessment criteria and methods shall be done in accordance with the relevant provisions.
- iv. Approval of renewed curriculum shall follow the relevant provisions.

6. APPLICABLE REFERENCES

- <https://www.ncaaa.org.sa/enportal/Pages/default.aspx>, National Council For Academic Accreditation, Assessment and Evaluation
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