

File No. 36-10/2016-NVEQF
Government of India
Ministry of Human Resource Development
Department of Higher Education
NVEQF Section

Shastri Bhawan, New Delhi-110115

Dated: 05.02.2018

To

✓ Dr. M.P. Poonia
Vice Chairman
All India Council for Technical Education
Nelson Mandela Marg, Vasant Kunj,
New Delhi.

Subject: For revised credit Framework "SAMVAY" -reg.

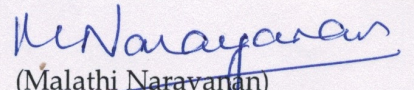
Sir,

Please refer to your letter No. 7-6/D-NSQF/NSQF/2015/III, dated 03.01.2018 on the subject mentioned above.

2. In this regard, a final copy of Skill Assessment Matrix for Vocational Advancement of Youth (SAMVAY) is attached.
3. This issues with the approval of Special Secretary (Technical).

Yours faithfully,

Encl.: As above.


(Malathi Narayanan)
Deputy Secretary to the Govt. of India
Telephone: 011- 23384276

Skill Assessment Matrix For Vocational Advancement of Youth (SAMVAY)

A Credit Framework for Skill Based Vocational Courses



Government of India
Ministry of Human Resource Development

1. **Introduction:**

Every country develops its own system of education to express and promote its unique socio-cultural-economic identity besides meeting the challenges of time to leverage the existing potential opportunities. India, at present, is recognized as one of the youngest nations in the world with over 50% of the population under the age of 30 years. It is estimated that, India will have 20% of the world's total workforce. In order to harness the full demographic dividend, India needs an educational system which is of high quality, affordable, flexible and relevant to the Industry, economy and to the society as a whole. The necessity, therefore, is to empower and enable India's young population to sustain a livelihood throughout their lives requires that educational institutes and government look beyond traditional pathways of education, employability and employment. Harnessing the demographic dividend through appropriate skill development efforts would provide an opportunity to achieve inclusion and productivity within the country and also a reduction in the global skill shortages. The 'Vocational Education' had been in vogue, but it did not get the level of acceptance by the society in comparison with academic programs. Efforts are being made to introduce compulsory and optional vocational subjects at school level. But their acceptance for mobility into higher education is a major challenge.

In order to make education relevant and to create 'industry fit' skilled workforce, the institutions recognized to offer skill based courses have to be in constant dialogue with the industry and respective Sector Skill Council (s) so that they remain updated on the requirements of the workforce for the local economy. There shall be credit-based modular programmes, wherein banking of credits for skill and general education components are permitted so as to enable multiple exit and entry. This would enable the learner to seek employment after any level of Award and join back as and when feasible to upgrade her / his qualification / skill competency either to move higher in her / his job or in the higher educational system.

In view to mainstream skills, GOI launched the National Skills Qualification Framework (NSQF), with varying proportion of vocational skill hours to academic class and lab hours allowing horizontal and vertical mobility.

The framework allows multiple pathways between Vocational Education - Skills, General Education and job markets. It does not seek to replace the current systems of education nor does it redefine the current education paradigm. It seeks to establish a credit framework that allows vertical and lateral mobility within vocational education system, skills development and the current education systems.

The credit framework defines the rules for credit allotment and follows the NSQF regulatory framework and does not seek to redefine or replace the NSQF. The executors of the credit framework shall be the certifying bodies defined at different levels as defined in the NSQF.

The credit framework clearly states the credit assessment requirements for skills. The credits for education are indicative and would be subject to adoption by the concerned certifying bodies with or without modifications.

2. Key concepts

- a. **'Credit'** is a recognition that a learner has successfully completed a prior course of learning, corresponding to a qualification at a given level.
- b. **"Knowledge"** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. Knowledge is described as theoretical and / or factual.
- c. **'Skills'** means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);

d. **"Competence"** means the proven ability to use acquired knowledge, skills and personal and social abilities, in discharge of responsibility roles. It is the ability to do a job well.

e. **"Learning Outcomes"** represent what a learner knows, understands and is able to do on completion of a learning process, and which would be expressed in terms of knowledge, skills and competence;

f. **"Qualification"** means a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards.

g. **"Learner"** refers to an individual undergoing skill development training, whether in a formal or informal setting.

h. **"Trainer: Skill Knowledge Provider (SKP)"** means someone who trains, instructs, teaches or otherwise enables the learner (s) to acquire the appropriate knowledge and skills.

i. **"Recognition of Prior Learning' or "RPL"** is the process of recognising previous learning, often experiential, towards gaining a qualification.

j. **"Sector"** means a grouping of professional activities on the basis of their main economic function, product, service or technology

k. **"NSQF"** stands for National Skills Qualification Framework as notified by the National Skill Development Agency (NSDA) vide Notification date 27th December, 2013.

l. **"NSQC"** stands for National Skills Qualifications Committee set up in accordance with NSQF by Ministry of Skill Development and Entrepreneurship.

m. **"School /College / Polytechnic/ University"** refer to any Institution providing Education and facilitates skills to learners

3. Credits

"Credit" is recognition that a learner has successfully completed a prior course of learning, corresponding to a qualification at a given level. For each such prior qualification, the student would have put in a volume of institutional or workplace learning, and the more complex a qualification, the greater the volume of learning that would have gone into it. The credit points give learners, employers and institutions a means of describing and comparing the learning outcomes achieved. Based on this, the additional learning outcomes to acquire a qualification at a higher NSQF level can be determined. Credits quantify learning outcomes that are subject to valid, reliable methods of assessment. The number of credits may be worked out on the basis of the number of notional learning hours that an 'average' learner at a specified NSQF level might expect to take to achieve the learning outcomes, including the assessment. However, this is merely a guide and no credits are added or taken away if more or less time is taken to achieve the outcomes. No credits are 'earned' by a learner if the learning outcomes are not achieved or, in the case of RPL demonstrated.

- 3.1 Credits can be used to assist learners to transfer between programs. This can happen only when awarding bodies determine how much credit can be transferred into which of their programs. This decision will depend upon the nature / content of the learning for which the credit has been given and the requirements of the program into which transfer is being sought.
- 3.2 This will also facilitate multiple entry and exit pathways at each level or within a level with the bundle of credits earned clearly certified by assessment and certification bodies which have been authorized to do so.
- 3.3 Wherever notional learning time is used, it should include all learning activities required for the achievement of the learning outcomes for a particular level, such as:
 - For formal learning, includes classes, training sessions, coaching, seminars and tutorial

- Practice and learning on the job - gaining, applying and refining skills in the workplace
- When involved in informal learning, has community-based workshops, youth groups, playgroups
- When doing practical work in laboratories or other locations
- For expected private study, revision and remedial work
- For work-based activities which lead to assessment
- For undertaking all forms of assessment

Notional learning time may also be linked to the International Standard Classification of Occupations (ISCO 08), which includes reference to a nominal duration of learning and workplace training for each occupation. The need to undertake any or all of these will be considered when credit is being allocated to a qualification or learning program. The mix of learning activities will vary from program to program - in school, the learning might be mostly class-based; in higher education much of the learning time could be spent outside of formal lectures etc. In other situations, much of the learning will be work-based. In determining the notional learning time involved in achieving outcomes of learning (*eq.* in a module / unit, program, or any piece of assessed learning), no rigid allocation of time is implied in this system, particularly as flexible and distance learning develops.

4. Component of NSQF

The NSQF has important components such as multiple entry and exit, horizontal and vertical mobility between Vocational, General, Technical and job specific education, Outcomes based Learning, Industry Engagement, National Occupational Standards, competency-based curriculum, Credit Accumulation and Transfer System (Credit Banking), Recognition of Prior Learning, Quality assurance and sharing of resources. Assessment and Certification norms will be developed by Regulatory bodies like UGC/AICTE, Sector Skill Councils or relevant industry which may be approved by NSQF wherever required.

5. Credit Framework

Credit framework is a pre-requisite to ensure mobility of learners with credit currency towards recognition of their acquired competencies. The credit framework provide for credit-based modular programmes, wherein banking of credits is permitted to enable multiple exit and entry. Specific credit based assessment and award system has been incorporated giving sixty percent weightage to the skill component and forty percent weightage to general education component. The credit banking i.e. Credit Accumulation and Transfer System (CATS) allows a unit of assessment is a set of skill based learning outcomes, which can be of any size demonstrating learning outcomes for a NOS or Module.

Learning outcomes are defined as what a learner is expected to know, understand at every level of skill sets of the NSQF for that sector and do *Assessment criteria* are standards for achievement outcomes. *Level* is an indicator of the relative demand, complexity and depth of study and of learner autonomy in handling the skill sets. *Credit value* is a numerical value defined to form a unit size of module.

Credit Accumulation and Transfer System (CATS) uses a criteria of intellectual skills and attributes, skill sets, process and accountability. The level descriptors (already notified under NSQF) should be seen as a developmental continuum in which preceding levels are necessarily subsumed within those which follow.

6. Credit - A Policy Measure for Learning

Until recently, traditional credit accumulation and transfer schemes served a limited purpose. However, in response to the needs of the learning society, new credit systems are developing, representing a broader vision of the application of credit. Within an increasingly diversified learning environment, credit can provide a means of linking disparate learning gained in a range of contexts and of integrating different systems. A credit system recognizes learning wherever it occurs and facilitates progression, transfer between institutions and articulation between qualification pathways. It can provide the underpinning for the National Skills Qualifications Framework.

Credit can be a source of honour or pride to those receiving it as an acknowledgement of merit. It also involves an element of belief and trust and its value is dependent on the good reputation of those awarding it. Credits are the currency of a credit scheme or system, providing a common unit of exchange which can be used to ascribe value to units, modules or subjects which may vary in size and complexity.

Credit framework development should concentrate on promoting credit as a currency, able to relate to all learning, however achieved, and located within any NSQF qualification hierarchy, and, therefore, related to but distinct from any other qualifications framework.

A **credit** is an award made to learners in recognition of learning achievement

- A **credit scheme** is a formal mechanism for awarding credits in respect of learning achievement.
- A **credit system** is a framework with a set of specifications that is used by a range of institutions and / or awarding bodies when designing and operating credit schemes.
- A **national credit system** is a framework with a set of specifications that is used by all institutions and awarding bodies within a national education, vocational education and skill training system. It is designed to be inclusive of all forms of learning and all types of awards required under the NSQF.
- A **National Skills Qualifications Framework** is a formal mechanism for recognising national awards, within a transparent, coherent and flexible national skills qualifications system. It involves, inter alia, the establishment of a credit system to provide a common basis for describing and comparing awards and for establishing equivalences between them.

Credit accumulation is the process by which learners accumulate credits towards an award of a particular certifying or awarding body / institution. Credit accumulation practices aim to extend flexibility in provision and extent of student choice.

Credit transfer is a process whereby qualifications, part-qualifications and learning experiences are given appropriate recognition (or credit). This enables students to progress in their vocational/ skill studies without having to repeat material or prior levels of study, to transfer from one course to another, and to gain further educational/skill experience and qualifications without undue loss of time, thereby contributing to the maximization of accumulated credits.

7. Components of Credit Accumulation and Transfer System for Educational Institutions

A credit system is a framework with a set of specifications that is used by all institutions and certifying/awarding bodies within the national education and skill training system. The components can be identified as follows:-

- Learning Outcomes
- Assessment Criteria
- Level of Learnings
- Quantum of Learnings

In the development of a comprehensive national system, a uniform and consistent definition of credit is required that will enable judgments to be made about the value of achievement, irrespective of time, place or mode of learning.

- (a) **Learning outcomes** are statements of what a learner is expected to know, understand and do in order to achieve credit (FEU 1992). Specific learning outcomes describe in detail the knowledge, skills and attitudes which the learner will be able to demonstrate as a result of that learning experience as detailed under NSQF for skill component.

- (b) **Assessment** is the process of determining that the learner has achieved the outcomes of the module. Generally, the process of assessment involves the use of techniques appropriate to the type of learning outcomes involved. In practice, the relationship between learning outcomes, assessment and the recording of achievement varies.
- (c) **Level of learning** is one of the dimensions evaluated in the process of determining the credit rating of learning achievement each level of the NSQF.
- (d) **Quantum of learning:** Credit schemes use different yardsticks for measuring the 'quantum of learning'. A *credit tariff* specifies a quantitative relationship between the amount of credit associated with achievement and some measure of the quantity of learning outcomes.

Increasingly, the concept of *notional learning time* is being adopted for credit systems that involve a separation of certification from program delivery. Within such a credit system the credit tariff, as the agreed unit of account, is used as the basis for assigning credit (and multiple credits) to constituent parts of learning programs, stand-alone modules, and whole awards/certificates.

Using notional learning time as the basis for measuring the quantum of learning, a credit value can also be assigned to all learning, including, for example, in-company training, experiential learning or prior learning. The agreed tariff becomes the basis for assigning a credit value to any modules submitted for recognition.

8. Credits: Estimations for Educational Institutions

In India, in the general higher education, academic year has 180 working days; 28 - 30 weeks of actual class room teaching; five days a week. 12 weeks are for admission and examination; 8 weeks for vacation; 2 weeks for public holidays.

This is distribution of 52 weeks in a year. In a semester pattern. 1 credit point for learning corresponds to 1 hour theory contact time per week or 1 credit point for learning corresponds to 2 hours practical contact time per week over 14 - 15 weeks per semester. This may be split into 70% - 80% class / contact time and 20% - 30% outside the class.

In order to establish equivalence and mobility between school and university higher education programs, we may conservatively consider 25 - 30 credit points per semester which translates approximately 500 Hrs of learning per semester (This is based on 15 weeks —6 day week and 6 hrs of working per day resulting in 540 hrs. per week taken as about 500 hrs per semester). Besides this a student would have about 10 Hrs. / week for cultural and extracurricular activities for personality development.

8.1 The skill based courses, generally, have both the skills and general education components. The general education component, as discussed above, will be assessed by the concerned institutions themselves as per the norms for university / collegiate education. The following formula may be used for the credit calculation in general education component of the courses:

- General Education credit refers to a unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week. Accordingly, one Credit would mean equivalent of 14-15 hrs or 28 - 30 hrs of workshops / labs.
- For internship / field work, the credit weightage for equivalent hours shall be 50% of that for lectures / tutorials.
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study shall be 50% of that for lectures / tutorials.

8.2 The Skill component of the course will be assessed and certified by the respective Certified Skill Assessors (CSA). The Certified Skill Assessors for a specific trade are made available by the respective Sector Skill Council or a committee headed by the respective Board or prescribed by the concerned regulatory body. The credits regarding skill component may be awarded in terms of NSQF level certification which will have more than 50% weightage of total credits of the course based on the assessment in a manner prescribed by the concerned regulatory body.

8.3 Following general guidance is provided for the NSQF aligned vocational courses in schools and HEIs.

- Institutions to offer credit based modular courses with multiple entry and exit options aligned to progressive job roles in concerned trade / sector.
- The banking of credits for skill and general education components shall be permitted so as to enable multiple exit and entry. This would enable the learner to seek employment after any level of Award and join back as and when feasible to upgrade her / his qualification / skill competency either to move higher in her / his job or in the higher educational system.
- The institutions offering skill based courses may adopt and integrate the guidelines and recommendations of the respective Sector Skill Councils (SSCs) for the assessment and evaluation of the vocational component, wherever available.
- Certification of award after the assessment as provided above will be done by the recognized Board / University as the case may be. The assessment for general education component will be as per the collegiate education norms and for the skill component as per the criteria provided under para 8.2. The credits weightage of the two components will be clubbed together to award the Certificate / Diploma or a degree to the qualified students.
- Each level of certification is combination of Skill and Education and the indicative Credit calculated as per the Credit Table I.
- The Education components at levels I, II, III, IV would be as per the CBSE/NIOS Content or State School Board as the case may be.
- All Vocational Skill component would be sector specific based on the Qualification Packs for identified job roles incorporating NOSs framed for the skill competencies for the intended job role.
- Learning towards an academic award may be gained in a number of contexts viz, school level to higher level vocational training in HEIs, experiential learning, employer's training etc. and may be undertaken in modular pattern for identified units / NOSs in full time or part time or through blended learning mode.

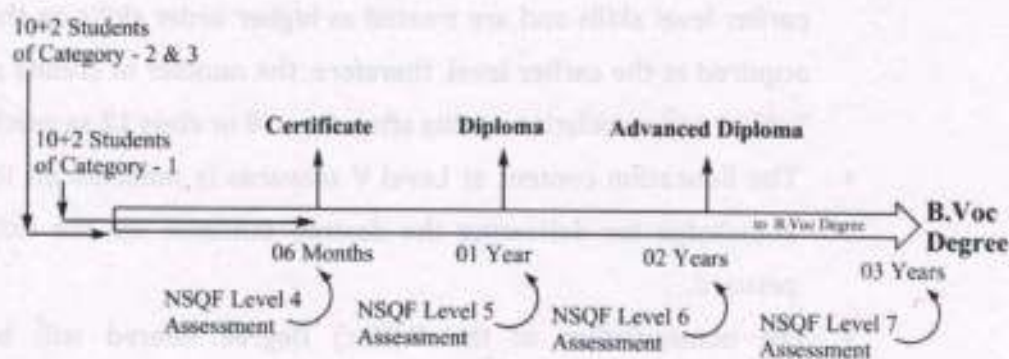
- Skills acquired at each higher subsequent level are added on skills on the earlier level skills and are treated as higher order skills on the level of skills acquired at the earlier level, therefore, the number of credits provided in the Table 1 are cumulative credits after class 10 or class 12 as specified.
- The Education content at Level V onwards is modeled on the professional knowledge for delivering the desired outcome for the skill sector being perused.
- The nomenclature of the B.(Voc) Degree offered will be as per the specification of degrees u/s 22 (3) of the UGC Act, 1956. Institutions may elaborate the degree by indicating the specialization i.e. B.Voc - Sector name - Specialization name e.g., B.Voc (Agriculture) - (Food Processing).
- The nomenclature of the Diploma (Voc) offered will be Diploma Voc - Sector - Specialization, e.g. Diploma (Agriculture) - (Food Processing)
- As the CBSE and many other school boards are initiating skill based vocational courses with certification at NSQF Level 4 for students completing 10+2, there may be three types of learners getting admission to first semester of skill based courses under NSQF:

Category - 1: students already acquired NSQF certification Level 4 in a particular Trade and opted admission in the skill based courses under NSQF in the recognized institutions in same trade with job role for which he / she was previously certified at school level.

Category - 2: students who have acquired NSQF certification Level 4 but may like to change their trade and may enter into skill based courses in a different trade.

Category - 3: students passed 10+2 examination with conventional schooling without any background of vocational training.

The institutions will develop curriculum and arrange for skill intensive training / teaching for the learners belonging to the category-2 and 3 as above during the first six months who will be assessed and certified for NSQF Level 4 of skill competency by concerned CSA at the end of first semester. However, learners belonging to category-1 will not require such certification as they were already having NSQF level 4 certificates in same industry sector / job role required for specified skill credits.



All the learners continuing to Diploma courses or further will be treated at par from second semester onwards. Students may exit after six months with a Certificate (NSQF Level 4) or may continue for diploma or advanced diploma level courses or above. An academic progression for the students in vocational stream after senior secondary level is illustrated in Table 1.

8.4 Credits, Curricular Aspects and Course Duration (*Gen Education and Notional Learning Hours based Input Credit Structure*):

- One Credit = 14 -15 Hrs. for Theory in case of face to face class room teaching
- One Credit = 28 -30 Hrs. for Practical/Skill/Theory under ODL
- One Credit = 40 -45 Hrs of Experiential Learning / Assignments/ MOM / Self Study or Occupational Experience subject qualifying performance criteria.
- Component of Theory and Practical/Skills will be flexible at each level as per the structure of course and NOSs incorporated in the concerned Q.P. The ratio of Skill Component to that of General Education component will be same as provided under para 8.2.
- The institutions have to affirm the Q.P. / NOS based learning outcomes at each level as prescribed in NSQF level descriptors for assessment and academic progression especially in skill component
- The institutions may also provide for Recognition of Prior Learning (RPL) framework for job roles at appropriate NSQF Level for which they already having approved courses by the regulatory bodies by conducting assessment and certification through respective SSC(s) / DGET or Agencies so authorized for the purpose from time to time.

- The award of 'Certificate' / 'Diploma' / 'Advanced Diploma' / Degree to the successful learners in both skills and general education components of the curriculum may be done on acquisition of requisite credits as illustrated at Table-1 and obtaining a qualifying grade as per credit system prescribed by the respective regulatory body / awarding body. As provided under CATS the Award & Certification may be considered depending on acquisition of requisite credits as prescribed and not on the duration of the calendar time spent in pursuing the course.
- Credit points, SGPA and CGPA may be calculated based on the Later Grades and Grade Points as illustrated in Table 2.

Table-1 : Credits and Awards:

NSQF Level	Eq. Academic Standard	School Education	Higher Education	
		Cumulative Number of Credits and Awards		
		Certifying Body : Recognized Board	Certified Body: Recognized Technical / Skills / Vocational Board	UGC Recognized University
1.	9 th	35 -14 : Certificate L-1	Entry Level HSLC	Entry Level SSLC
2.	10 th	70-80 : Certificate L-2/ SSLC/ High School		
3.	11 th	105-120 : Certificate L-3		
4.	12 th	140-160 : Certificate L-4/ HSLC/ Intermediate	90-120 : Certificate L-4	25-30 : Higher Certificate
5.	1 st Year Graduation		135-180 : Certificate L-5	45-60: Diploma L-5
6.	2 nd Year Graduation			90-120: Advanced Diploma L-6
7.	3 rd Year Graduation			135-180: B.Voc L-7
8.	1 st Year PG			180-240: P.G Diploma L-8
9.	2 nd Year PG			225-300: M.Voc L-9
10.	Post Master/ Research Level			Post Master Diploma/ Research Degree may be awarded based on the compliance to UGC Regulations

- Letter Grades and Grade Points, in a 10-point grading system, maybe adopted as given below:

Table 2: Grades and Grade Points

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F(Fail)	0
Ab (Absent)	0

A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

- Computation of SGPA and CGPA: Following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) may be adopted
- The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the course components taken by a student and the sum of the number of credits of all the courses undergone by a student in a semester, *i.e.*

$$\text{SGPA } (S_i) = \sum(C_i \times G_i) / \sum C_i$$

where 'C_i' is the number of credits of the *i*th course component and 'G_i' is the grade point scored by the student in the *i*th course component.

- The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, *i.e.*

$$\text{CGPA} = \sum(C_i \times S_i) / \sum C_i$$

where 'S_i' is the SGPA of the *i*th semester and C_i is the total number of credits in that semester.

- The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
- The certificate for skilling component preferably be awarded by the Sector Skill Council in terms of NSQF level either singly or jointly with the institution concerned and the general education grades may be certified along with the skill component in terms of certificate/ diploma / degree awarded by the institution in the grade card as illustrated below:

Students Details:		Institutional Details			
Semester					
Courses		Credits	Later Grades	Grade Points	Credit Points
General Education Component	Paper - 1	03	A	8	24
	Paper - 2	02		7	14
	Paper-3	03	B	6	18
	Paper-4	04	A	8	32
Skill Component		18	0	10	180
		30			268
SGPA = $268 / 30 = 8.933$					
CGPA = $(\text{SGPA in Semester- 1} \times \text{Total Credits in Semester}) + \dots \dots \dots n^{\text{th}} \text{ Semester}$ Total Credits in the Course					

8.5 Each awarding / certifying bodies shall have to clearly enunciate the number of credits at entry level for each NSQF level that it is implementing so that it is transparently clear for any learner. The same body will also have to follow a method of calculating/granting of credits based on this document and clearly put this upon their website in the public domain.

The concerned regulatory body or school board may define Model Curriculum for identified competency modules providing the NOSs training delivery plan for the required skills as well as general education component. The model curriculum so developed wherever available may be adopted or adapted in consultation with the industry partners. Wherever the curriculum is not available, the same may be developed in consultation with the relevant Sector Skill Councils and industry partners and the Board of Studies. While doing so, the institutions may work towards aligning the curriculum with the National Occupational Standards being developed by the respective/allied Sector Skill Councils. This would promote national and global mobility of the learners, as well as higher acceptability by the industry for employment purposes.