

Semesterisation, Choice Based Credit System, Continuous Assessment & Grading for Undergraduate Programmes in Kerala

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0. Opening Remarks

The Kerala State Higher Education Council has recently adopted the report of the Committee on Restructuring of Undergraduate (UG) Education in Kerala. As the academic community is gearing up to adapt the same, certain ideas embedded in the report requires explanation in plain English. This article attempts to do exactly that. At the outset itself, it needs to be understood that the recommendations of the Higher Education Council are of an advisory nature only. This reform will have to be implemented by the Universities only through the usual process of academic debate in its academic bodies, the board of studies, faculties and the academic councils. These bodies may make amendments in the recommendations as they deem fit.

1. The Four Pillars of the UG reforms

The four major aspects of the newly proposed reforms are:

- Semesterisation
- Choice-based credit system
- Continuous assessment
- Grading

There are two ways of looking at the reforms, either as a mere structural transformation, or as a philosophic transformation. While both looks are required, all the above reforms suggested by KSHEC should be viewed and implemented with the aim of a transformation in academics – a transformation where the education system changes from a teacher-oriented to learner-oriented mode, a transformation where students change from being passive recipients of knowledge to becoming active participants of the knowledge imbibing process. A major curricular reform would be required in all UG programmes in this context, which should weave such transformation into the programme objectives, syllabus, assessment strategies, curricular transaction, educational technology and student management. All the proposed reforms are relevant only in the context of such microscopic transformation in academics being ensured.

2. Semesterisation

What should be the ideal length of an academic term ? *3 years ? 2 years ? 1 Year? 6 months ? 4 months ? ...* All the above models have been used/are in use in various Universities, year system being the rarest internationally. In Kerala, even 3-year term was in vogue once, for the BA/BSc Honours programme, a few decades back. The examination at the end of the BA/BSc Honours programme supposedly covered all that was transacted in the 3 years of the degree programme. One can imagine what a demand on memory recall would such a 3-year final examination have

¹ The interpretations and opinions expressed regarding the reforms proposed by the Kerala State Higher Education Council (KSHEC) in this article are the authors own and not necessarily endorsed by the KSHEC.

created. Also, it can be any one's guess as to whether examination questions in such an examination could have achieved a comprehensive coverage of topics studied.

If we reject the 3-year and 2-year alternatives, an year system best suits the administration of examinations. This is because the current work force and work-load of the University administrative set-up are in principle tuned to the year system. However, by the same logic we reject a 3-year examination, there is an academic case for 6-month academic term. Shorter terms seem to be more suited academically, as (i) shorter terms will have relatively less demand for memory recall (ii) questions can cover topics more comprehensively (iii) it is easier to ensure cohesive learning experience and academic momentum for shorter terms. As already noted, this requires a careful transformation in teaching and learning practices.

In Kerala, semester system has been in use for BTech courses since late 1970s and trimester was tried out in Kerala Agricultural University for some time. Almost all PG programmes in various Universities in Kerala run on semester system. It is however obvious that what is applicable to PG programmes need not be easily applicable to UG programmes, in the same manner. UG programmes have more number of students, have students who are entering the college system for the first time, and who remain in the system for 3 years. Hence semesterisation of UG programmes would naturally present its own problems.

3. Choice-based Credit System

Our traditional degree courses are reminiscent of a served lunch, or the traditional *sadya*. Irrespective of the need and taste, the same food is served for all, with no choice for the main course, with a few choices in the final course ! It has its advantages and disadvantages. If people take the full course, some balance of diet as envisaged traditionally will be met. Also the logistics of administering the lunch is simplified. But for those who want to meet their needs only, it is no good. The new choice based system is like a **buffet lunch**, where students choose the 'papers' of their choice, within certain broad restrictions (if we let kids eat an unrestricted buffet lunch, they might end up eating just chicken and ice cream, a nutritionally imbalanced meal!). In a choice-based credit system, we divide the papers into **core** and **elective** groups and ask students to choose, say, 60% of their papers from core group and the rest from electives². The electives could ideally come from other Departments also. This ensures inter-disciplinary teaching and learning. For instance, in an ideal situation, a student specialising in mathematics can opt to learn a paper in Sanskrit, or Ethics or Introduction to Life Sciences, if she so desires. A horizontal integration of learning experience across disciplines will thus become possible. This suits the changing knowledge scenario. Today, no biology student can ignore mathematics and computer science, no computer science student can ignore linguistics, no biology student can ignore ethics.

Naturally, the logistics of administering the courses under a choice based credit system will become more complicated especially, in view of shortage of teachers and also infrastructure. But the system is more fair to the student, permitting her to seek knowledge that suits her varied interests, aptitudes and also ensures the interdisciplinary knowledge requirements of the present times.

In the new system, "papers" will be referred to as "**courses**" and BA/BSc "courses" will be referred to as BA/BSc "**programmes**". One of the major features of the new system is that not every paper (course) is treated equal. While designing syllabus, courses can have weightages defined. These weightages are called **credits**. A paper/course which has 4 *contact hours per week per semester* is taken as a full paper/course and is considered as having a weightage of 4, or as a 4-credit course. A paper with 2-credits is like a half paper. An example is a seminar. Dissertation Projects typically carry higher credits. Instead of adding all marks directly, they are meaningfully multiplied by their weightages (ie, credits) to arrive at the aggregate (we will soon see that we do away with marks). This is indirectly equivalent to giving more marks for more important papers or for activities such as dissertation projects.

² In fact all papers are electives, as there is choice for core papers also.

In the new system, instead of specifying number of papers/courses, only the total credits to be earned is specified. If a 6-semester UG programme specifies credit requirement as 120 credits, it means that at an average 20 credits need to be earned each semester, which can be earned in different ways such as: (i) five 4-credit courses (five full papers) or (ii) four 4-credit courses and two 2-credit courses (four full papers and 2 half papers) or (iii) six 3-credit courses and one 2-credit course.

The KSHEC is currently holding discussions to evolve a model programme framework. The current model being discussed is to have a few common courses across all degree programmes. Courses in the 6 semesters are being planned based on the work-load distribution pattern for languages, main and subsidiary as in existence today. The details of the programme structure will be described as and when it evolves.

A vast majority of Universities and higher education institutions in the world (including Central Universities, IITs and IISc in India) have been practicing the credit system for decades. In Kerala also, most Universities practice the credit system in their PG programmes, and also for selected UG programmes³. In an age where student mobility is on the increase, this system will ensure that our academic programmes are understood well by other educational institutions and students find it easy to transfer their credits across institutions.

4. Continuous Assessment

In the year system, assessment of students is through end-of-the year university examinations. Even though class tests are practiced, as they do not form part of formal assessment. A continuous assessment in semester system (also known as internal assessment/formative assessment) is spread throughout the duration of the course and is done by the teacher teaching the course through various means including written tests, MCQ (multiple choice question)-based quizzes, mini projects, presentations, group activities, field visits etc.

The most important aspect of continuous assessment is that continuous feedback on teaching and learning are available to the teachers /students which are crucial in readjusting the teaching and learning accordingly.

By its very nature, continuous assessment can afford unstructured assessment tasks spread across a span of time and also reaching out of the classrooms, like case studies, projects, field visits and other such activities. Typical end-semester assessment attempts to measure direct and indirect cognitive achievement alone. Continuous assessment makes it feasible to measure non-cognitive outcomes also. This implies taking into account the specific conditions of the class room and also the teaching style of the teacher and learning style of the students and hence is feasible only if conducted by the teacher concerned. Indeed, for the same reasons, there is strong case that all assessment must be made by concerned teachers – *those who teach must mark. Teaching, learning and evaluation are inseparably linked.*

Continuous assessment is often discussed in the backdrop of (i) **victimisation** of students by some teachers and (ii) **generous granting of marks** in profit-motivated institutions. A very transparent and somewhat structured assessment system (structured to the extent that it does not kill the creativity in assessment envisaged in continuous assessment) will address the victimisation possibility which must be seen as one-off incidences, anyway. Transparency can be achieved by publishing assignment questions and grading policies in advance. There should also be clear grievance redressal system in place. When assignment are given, there must be clear guidelines as to how to earn each grade. See for example the assignment guideline below:

³ University of Kerala has implemented choice - based Credit and Semester Systems and Grading for its BTech programme from 2003 onwards.

This assignment is aimed at giving the students an opportunity to practice some activities that will enable them to acquire knowledge/statistics related to some topics covered in the syllabus. The starred questions may require self-study of topics not covered in the course. Dead-line: 3PM, Friday of the 16th week of the semester (if holiday, then the subsequent working day) Delayed submission will attract 5% less marks/day. Any request for delayed submission will be entertained only if the work completed as on the deadline is submitted. Grading would be as follows:

A: Evidence of exceptionally keen involvement and successful completion of all tasks.

B : Evidence of keen involvement and attempt to solve at least some of the starred tasks and successful completion of other tasks.

C: Successful completion of all tasks except starred ones

D : Partial/Satisfactory completion of all tasks except starred ones

F: Unsatisfactory

Scientific Normalisation Procedures (for instance, conversion to z-scores) adopted by the University can, to certain extent, address the generous granting of marks in profit-motivated institutions.

Continuous assessment to the tune of 40% has been practised in professional courses in Kerala for the past 30 years. The complaints are very few (indeed, there could lot of untold complaints) considering the fact that over 25000 students in each year of four year courses, totalling 1,00,000 students, are under it anytime, currently. It is also to be noted that the democratic movements of students and teachers can play a positive and balancing role to prevent victimisation and also in preventing false allegations of victimisation.

Appendix – I gives the UGC recommendation on Internal Assessment. These guidelines complement and supplement some of the thoughts presented above.

5. Grading: The Basic Idea

The migration from marks to letter grades proposed by the KSHEC in UG restructuring is a major transformation in academic practices in Kerala. In high/higher secondary schools and in almost all masters degree programmes in Kerala, grading of some form is already in place and a vast majority of Universities and higher education institutions in the world (including Central Universities, IITs and IISc in India) have been practicing grading for decades. The grading system proposed in the UG restructuring is not just a mere translation of range of marks to letter grades, but a comprehensive and philosophical shift in assessment practices.

At the bottom of the practice of grading is the scientific outlook **that measurement of educational outcomes is subjective**. The subjectivity arises from many sources such a (even the so-called objective type test (MCQs) are subjective in many of these aspects):

- the subjective choice of questions in examinations
- the subjective assignments of weightage to questions
- the subjective interpretation of marking schemes by examiners
- the human element in making assessment

It is also to be noted that it is impossible for any education system to ensure that the students who are subjected to a 'standard assessment' also have a standard educational experience. The wide variations such as the following are well-known:

- the varied learning experiences of students
- the varied teaching style of teachers
- the varied linguistic skill of students
- the varied socio-economic background of students

Due to long standing history of assigning numerical scores during evaluation of answer scripts, sometimes marks are taken too seriously as an indication of the exact measurement of the students' achievement. How else can we fail a student who scores 39 and pass one who gets 41 ? In most

cases a revaluation by the same examiner might result in 39 becoming 42 or 41 becoming 37. This is not a fault of the examiner, it is the natural subjectivity of assessment coming to fore.

Harper & Harper (1990) quotes many studies in India itself regarding unreliability of examination marks. (i) 90 photocopies of the same history answer books were awarded marks ranging from 22% to 76% marks by 90 experienced examiners (ii) A mathematics examiner remarked 50 scripts after 6 months raised the marks of one student by 20 points and reduced another by 8 points. On an average (in 4000 scripts covering subjects Hindi, Biology, History and Mathematics), 34% of the scripts were awarded a different class or division when they were marked again (happily, the researchers report that Indian examiners are slightly more reliable than those of many other countries, including USA, England and France). (iv) When 100 students in HSLC exam in Assam were administered two equivalent versions of the same question paper (traditional style), only 36% of the students were awarded the same class or division. Even in a multiple-choice examination, 10% showed different classification. Harper and Harper quotes the 1948-50 Education Commission chaired by Dr S Radhakrishnan, which describes the traditional type of examination as *invalid ... inadequate ... subjective and therefore not reliable*. The casualty list of traditional examinations is an interesting one. It includes Einstein (in high school mathematics), Gregor Mendel (twice in Biology), Oliver Goldsmith, Walter Scott, Issac Newton, James Watt ... Back home, we have the great example of Mathematician *Sreenivasa Ramanujan* (see Appendix for the Madras University Report of 1917, mentioning his marks for mathematics as 85/150. Zeroes are graciously interpreted as absence in examinations!). Famed Malayalam poet *Changanpuzha Krishna Pillai*, whose works were already a text book during his own student days, got awarded a third class in MA Malayalam.

The best proof that we seem to be ignorant of such *invalid ... inadequate ... subjective* nature of examinations is that we still have the ranking system in Degree programmes in our Universities. Is it fair is it to compare students based on such a subjective measurement? How can one say a student with 78.11% aggregate is above and a student whose aggregate is 77.98%. If the figures quoted by Harper and Harper are considered, can we even say that a 78.11% is above 68.11%?

If we accept the premise that **educational measurement is subjective**, then conscious steps are required to prevent disadvantage to the student community. The focus thus falls on reducing (not removing) this subjectivity.

One way of reducing the subjectivity is to consider an alternative to the 0-100 point scale of differentiation. Even though we mark answers in shorter ranges, this final scale cannot be justified, as ultimately this is what we depend on. Some means of using a shorter scale at every level of assessment would be reasonable, given the subjectivity that has already been pointed out. It would be fairer to classify students into 5 or 10 categories than 101 categories as the 0-100 mark range does. **If we choose a short differentiation range such as 0-5 and replace numeric figures with letters, we have the skeleton of a grading system.** Grading only does a coarse level of categorisation and hence is a *lesser evil* (recall that no system can claim perfection in assessment).

The reform suggested by KSHEC is to use a 5-letter grade scale for evaluating individual answers in answer scripts/ assignments etc, and for awarding grades to each course. A 7-letter grade scale is proposed for overall programme performance⁴. A question that arises immediately is **whether grading is simply marking in disguise**, confined to a short range. **The answer is Yes and No.** Yes, since we can arguably replace letter grades with numerals. However these are not exactly the same. **Consider two questions with maximum marks of 3 and 7 respectively. To mark each, we have to reset our mental scales, whereas to grade them, the examiner's mental makeup can be the same.** If we decide to give 2.5 to 3 marks for the best answer in the first case, it is, say,

⁴ Why two scales? During wide-ranging discussions held by KSHEC, the consensus that evolved was that 7 or even 10 letter grades were required for final classification to make the bunching fairer. Also it is to be noted that the overall grading does not require human judgement, it is calculated out of the grades of the components. In case of awarding grades for individual answers, it was felt that 7 or 10 levels may be out of the human ability of the examiner to judge in many cases and 5 levels was reasonable.

6-7 marks in the second case. However in grading, both are A. The evaluation of the quality of an answer and the weightage to be given to it in assessment are thus separated in grading.

Informally, a general grading scheme may be specified as follows:

A – Wow ! Outstanding Display of Knowledge/Understanding/Application
B – Very Good, but not extraordinary
C – Good
D- Fair/Satisfactory
F - Poor/Unsatisfactory

Fig. 1. A general grading guideline

Our mental scales can always remain as above (of course, read along with specific guidelines as provided in Evaluation Schemes) whether we are grading a short answer question or a long essay or a proof of a theorem. This is the reason why letter grades and numerals are not equivalent.

As grading classifies students into coarsely bunched groups, many more issues and questions immediately arise: How do we select students for higher studies (if, say, 10 students with A grade apply for 8 seats) ? How can students be motivated to learn as once they get A grades, more effort does not produce any “returns”. Will not an error in judgement of the examiner between A grade and B grade results in 20% error in actual terms, whereas such a high error in marks is not likely ? How do we rank students if there are only letter grades to compare them ? Before we can answer these, we need to know the operational details of grading (these questions are addressed in FAQ section).

6. Grading: Operational Details

As already indicated, the proposed reforms suggest comprehensive grading which would mean that we completely do away with marks at every level. For evaluating individual answers in examinations/assignments etc, 5-letter grades are proposed.

Classification	Grade
Outstanding	A
Very Good	B
Good	C
Fair	D
Poor	F

Table 1. The five point grading scale

An answer script is not marked, but only graded. How is this possible ? Let us take an example of an answer script with just 3 questions and their answers:

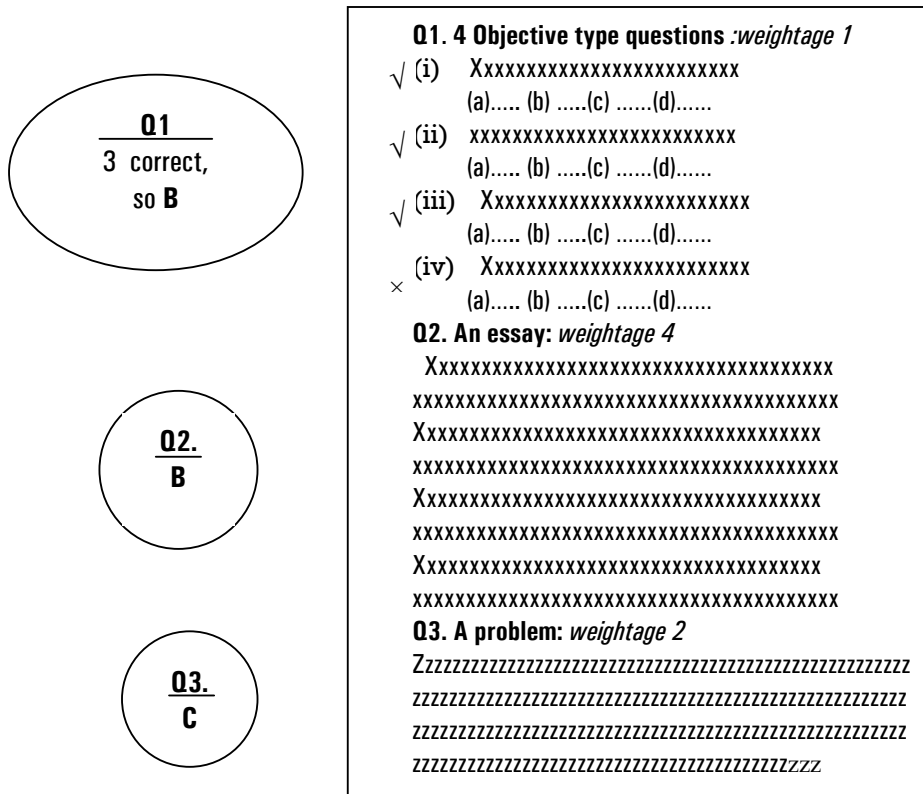


Fig 1. Marking a Sample Answer Script

Here is a sample grading scheme for evaluation of the above script:

Question	Grading Criteria	Grade
Q1	All 4 correct 3 Correct 2 Correct 1 Correct All 4 wrong	A B C D F
Q2	Points/features/ type of answers for each grade (or Fig 7 guideline)	
Q3	Points/features/ type of answers for each grade (or Fig 7 guideline)	

Fig 2. Marking Scheme for Sample Answer Script

You may note that the weightages are just like marks, but when you grade, you can ignore them, they are to be used at the end only, simply to calculate the overall grade. Let us assume that grades **B, B and C** were awarded by an examiner for the 3 answers. Let us see how grades of individual questions are combined to form the overall grade for the exam. For this, we need to go back to numeric quantities called grade points.

Grade	Grade Points	Grade Range
A	4	3.5 to 4
B	3	2.5 to 3.49
C	2	1.5 to 2.49
D	1	.5 to 1.49
F	0	Less than .5

Table 2. Grades, Grade Points and Grade Range

We now multiply grade points of each answer by the weightage of the questions and compute the total (weightage should always be the same irrespective of the questions attempted by the student). If we divide it by total weightage, we get the grade point average for the paper.

Question	Grade	Grade Point	Weightage	Contribution to aggregate
Q1	B	3	1	3
Q2	B	3	4	12
Q3	C	2	2	4
			Total =7	Total= 19
Grade point average= $19/7=2.70$				

Table 3. Combining Grades for each answer into a single grade for the paper.

We now need to convert the grade point average of 2.7 into a letter grade. For this we turn to grade point range associated with each grade, as given in Table 1 above. As 2.7 falls in the range 2.5 to 3.49, the answer script is given overall grade of **B**. Teachers might naturally be taken aback at the complicated calculations for arriving at a grade for one answer script. However this need not be the case at all. In a marked exam, do we set the marks of individual questions as 2.75, 13.55, 7.25 etc ? Would it not be giving rise to hair-splitting arithmetic ? So we choose convenient chunks of marks. Similarly, we can use weightages which are multiples of a basic unit to make things simpler. Then multiplication can effectively be avoided and a simple look-up table can be used. For example, we add 4 sub-parts to question Q2, each with weightage 1 and we split question 2 to have two sections, each with weightage 1. (please note that we do such convenient mark divisions in traditional exams also). Let us see how the calculations transform:

Question	Grade	Grade Point	Weightage	Contribution to aggregate
Q1	B	3	1	3
Q2 (4 subsections)	(a) A	4	1	4
	(b) B	3	1	3
	(c) C	2	1	2
	(d) A	4	1	4
Q3 2 subsections	C	2	1	2
	B	3	1	3
			Total =7	Total= 21
Grade point average= $21/7=3.0$				

Table 4. Combining Grades when weightages are the same.

As 3 falls in the range 2.5 to 3.49, the answer script is given overall grade of B. Since the weightages are all the same, and equal to 1, we can simply divide the sum of grade points (21) by number of questions (sub parts included), in this case 7, giving $21/7 = 3.0$ (2.5-3.49 range)= B grade. In fact we can simplify this procedure further. After all answers are graded, we can count number of As, Bs, Cs and Ds, and take its average. Hence the cover sheet of an answer script may look like the following in the above case:

No of A grades=.....	× 4 =
No of B grades=.....	× 3 =
No of C grades=.....	× 2 =
No of D grades=.....	× 1 =
No of F grades=	× 0 =
		Total T =.....
		No of Questions Q =...
		T/Q=.....
Circle Overall Grade based on T/Q above		
		3.5 to 4.00 A
		2.5 to 3.49 B
		1.5 to 2.49 C
		0.5 to 1.49 D
		Less than 0.5 F

Table 5. Cover sheet of an answer script (See Appendix for a General Model).

Here a question naturally arises. Can we not implement all the above ideas without letter grades, by simply restricting the marks to any type of questions to be maximum 4 and minimum 0 (and not providing for fractional marks) ? The answer is, in principle, Yes. (But if they are the same, why not go in for grading any way ! Also there are some subtle arguments too. Putting a zero which would mean “completely wrong” and putting an F which would only mean “unacceptable” is an example instance).

Now it is time to introduce the final operation in a grading system, that of combining grades of different courses/papers into that of a overall grade of a semester and then further combining the semester grades into that of a programme over-all grade. It is in fact very easy to explain now. Just follow the same procedure as above. Use course credits in place of question weightages. (This is anyway a task coming under the purview of the University administration and not teachers).

In the Semester Report, the grade points corresponding to the letter grades for each course is multiplied by the course credits (which represent the weightage of the course) and total is calculated. This divided by the total number of credits earned in that semester gives the *Semester Grade Point Average (SGPA)*.

Course/Paper	Grade	Grade Points	Credits	Contribution to to Semester Aggregate
Malayalam	A	4	3	12
English	B	3	3	9
Maths	C	2	4	8
Physics	A	4	4	16
Chemistry	A	4	4	16
			Total=18	Total=61
SGPA= $61/18=3.39$ (in range 2.5-3.49)=Grade B				

Table 6. A Semester Report

In the Programme Report, the grade points corresponding to the letter grades for each semester is multiplied by the total course credits of that semester and total is calculated. This divided by the total number of credits earned in the whole programme gives the *Cumulative Grade Point Average (CGPA)*. The difference here is that a 7-letter grade scale is used for grading the overall programme performance (please read the footnote in section 5 as to why 5-point and 7-point scales co-exist). The following is the 7-point scale for semester/programme grading

3.8 to 4.0	A+	4.0
3.5 to 3.79	A	3.8
3.0 to 3.49	B+	3.5
2.5 to 2.99	B	3.0
2.0 to 2.49	C+	2.5
1.5 to 1.99	C	2.0
0.5 to 1.49	D	1.5

Table 7. The seven point grading scale for overall programme grading

Semester	Grade	Grade Points	Credits	Contribution to Programme Aggregate
I	A	4	18	72
II	B	3	20	60
III	C	2	21	42
IV	A	4	18	72
V	B	3	20	60
VI	C	2	21	42
			Total 118	Total=348
PA = 348/118=2.94 (in range 2.5-2.99)= Grade B (in 7-point scale)				

Table 8. A Programme Report

Refer FAQ section to see how continuous assessment grades can be combined. Appendix – II gives the UGC recommendation on marks and grades and may be read along with the above discussion.

We close this article with two quotes, interestingly, from the 1970s:

“Grading is an honest confession of our inability to be so precise in assessing human qualities”.
H S Sreevasthava, Indian Educational Review, 1977

“The major contribution of the grading system is to prevent the fine distinctions being looked for where they don’t exist”
Chitbra & Ramani, Science Today, Sept. 1978.

7. FAQ

This note has covered most of the issues related to grading. This section compiles some frequently asked questions and responses, and is expected to continue to grow.

? One argument against grading is that grading “grades” students (hinting that this is a unwelcome categorisation – the objectionable *tharam thirivu!*). Is this fair ?

If one were to accept this argument, then we should first attempt to scrap awarding Distinction, First Class, Second Class etc which is practiced now, as they also categorise students. Why this, marks themselves are very fine categorisation of students into 100 categories !

**? How can we select students for admission to higher classes based on programme grades ?
What if all students who apply have the same grade ?**

One way is to use the cumulative grade-point-average of the programme to differentiate the students. But then one may criticise that we are relying on marks-in-disguise. This is not completely true, as the weighted averaging is a meaningful aggregation of grade points only and does not directly correspond to subjective numerical evaluations. However, if one desires to ignore this altogether, then grades themselves can be relied on. If there is a tie, then number of A grades, then number B grades etc can be used to break the tie.

Let us also note here that it is a merit of the grading system that there is more chance of a tie when we compare students based on overall grade. When we ruthlessly reject a student who has 0.1 % mark over another, we are relying too much on a subjective judgement. So, a tie in grades is not a bad problem to face.

? Students can slip from one grade to another at a difference of 0.01 in GPA Does this mean that grading has the same problem of unfair border lines ?.

One of the consequences of the differentiating is to have a border line which always will have to be unfair to cases too near the line. This is true for grading also at some level. As we could demonstrate in practice, grading is unlikely to have the kind of judgement errors that marking has, and the weighted aggregation evens out errors to some extent. Grade B, for instance, will reflect as grade point 4.5 in calculations, whereas if marks were used in the same range, judgement could vary from 4 to 5 and each will reflect directly in the total marks.

? Will not students lose motivation since marks would give them chance for fine competition which is lost in grading?. How can students be motivated to learn as once they get A grades, more effort does not produce any “returns” ?

That the chance for fine competition is lost in grading is true. However this is not a bad idea. If we look at it as a means of reducing unhealthy cut-throat competition, it becomes a positive point. Also placing marks at the helm of inspiration may not be a very ideal situation. If we really want to have, for whatever reason, a finer comparison, then GPA can be used for the same.

? How do we rank students if there are only letter grades to compare them ?

It is true that if we consider only letter grades, we cannot rank students the traditional way. This is not a disadvantage. It reflects the basic philosophy of grading that the sharp comparative judgement is impossible based on a subjective assessment. Hence ranking has no place in a grading system.

? Grade Points and Grade point averages are marks in disguise ?

Grade points come in only as a means of combining grades. Ideally grade point averages should be disregarded as it only serves to arrive at the combined grade.

? What is the difference between Absolute Grading, Direct Grading, and Relative Grading ?

What is proposed in UG restructuring is Direct Grading. This involves directly awarding grades to individual answers. Absolute grading, as practiced in SSLC in Kerala, maps mark ranges to letter grades. For example all who get more than 90% are awarded an A grade. Relative grading would award A to a certain percentage of the toppers. It would follow a specified distribution of grades. This style of grading has its advantages and drawbacks. However it is traditionally considered to be disadvantageous to ethnic/linguistic minorities and the socially backward, when a certain percentage of F grades are always awarded. The KSHEC has taken note of this and consciously avoided relative grading in its recommendations.

? Will not an error in judgement of the examiner between A grade and B grade results in 20% error in actual terms, whereas such a high error in marks is not likely ?

When percentage is mentioned, this looks like a major problem. However, for a weightage of 1, this change would be equivalent to 1 mark. An error of judgement of 1 mark in evaluating an answer for a 4 mark question is well there in marking too. For increased weightages, in case of

question sub-parts, the situation does not worsen. A one-shot question with no sub-parts which carries weightage of 4/ marks of 20, inherently has this problem and is not exclusive to grading.

? How do you combine the grades of different internal assessment components ?

Just like we mention weightage in marks for each assessment components in the traditional system, we can do so in the new system also. For example the following could be a guideline.: 1 Test: Weightage of 2, 2 assignments, each with weightage 1, and 1 Quiz with weightage 1. See the calculation below:

Component	Weightage	Grade	Grade point	Weightage * Grade
Test	2	B	3	6
Assignment 1	1	A	4	4
Assignment 2	1	A	4	4
Quiz	1	C	2	2
	Sum=5			Sum=16

Overall grade for internal assessment = $16/5=3.2 = (2.5 \text{ to } 3.49) = \mathbf{B}$

? How do you combine the grades of internal assessment and final exam ?

Just like we mention weightage in % for each internal and final exam, we can mention weightages for them. For example, internal assessment has weightage of 1 and final exam 2 (these correspond to 33.33% and 66.33% respectively)

Component	Weightage	Grade	Grade point	Weightage * Grade
Internal	1	B	3	3
Final exam	2	A	4	8
	Sum=3			Sum=11

Combined grade = $11/3=3.66 = (3.5 \text{ to } 4.0) = \mathbf{A}$

? UGC guidelines suggest that if a sample of 100 candidates is taken, assuming a normal distribution, the grading that can be done by a teacher or an examiner is shown in the table below: How is this possible until we artificially decide grades ?

Grouping of Pupils by a Teacher

Classification	Grade	Percentage of Population
Outstanding	1	7
Very Good	2	24
Good	3	38
Fair	4	24
Poor	5	7

In a relative grading this is possible more naturally than in direct grading. In direct grading which is the present proposal, this is feasible indirectly – by designing the questions carefully. If all the questions are too easy, we might get a A-grade inflation. If we have 10% unstructured, application oriented, challenging and creative questions, the situation will be different.

? Is the effect of credits not the same as assigning different maximum marks for different papers ?

The traditional weightage of marks of various subjects has many hidden effects. The actual weightage of a subject in the aggregate is dependent on the *spread of the marks* and not the maximum marks, as demonstrated by Harper [3]. In a particular examination with maximum 100 marks for four papers (English, Mathematics, Vernacular and History-Geography), the actual weightage varied widely:

	Intended weightage	Actual weightage.
English	100	84
Mathematics	100	156
Vernacular	100	64
History-Geology	100	96

? Even while agreeing to all positive features of the suggested reforms, would these be feasible in view of the unique Kerala situation ? Lack of teachers, politicised campuses, lack of infrastructure....

It is a reality that academics in Kerala has a large number of problems which are not conducive to the proposed transformation, for that matter, not conducive to the successful practice of the existing system itself. Do we wait for the stage to be set when every problem is settled ? Will a wait produce solutions ? Can't we hope that the reform itself will become a catalyst for settling the problems ?

8. References

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9. Acknowledgements

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Readers are requested to send their feedback to the author at sankar.achuth@gmail.com. The feedbacks will be responded to in future versions of the document

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A1. U.G.C. Recommendations on Internal Assessment

1. The necessity of sessional or continuous assessment is hardly ever questioned in academic circles, but it is commonly thought that this is a corrective for the chance factor involved in public examinations held according to a ready made astronomical time schedule. It is also thought that the public examinations give an impersonal or "objective" evaluation of a student's performance while sessional assessment has the drawback of being "subjective".

2. It is very necessary to look into the matter deeply and to realize that the above statements are only partly true; that in fact, sessional assessment deals with a sphere of activity which a public examination can never evaluate and hence the two are complementary to each other, that there are certain qualities of mind and of personality which can be reliably evaluated only by experienced teachers and hence "subjectivity" cannot simply be equated to a lack of criterion or to arbitrariness.

3. In fact teaching, learning and evaluation are inseparably linked together. When we teach, an evaluation allows us to find out if the objectives have been achieved, and if not what modifications in method or programme ought to be made. Thus evaluation is an essential link to feedback information which is of immense value to further teaching.

4. The objectives of teaching whose fulfillment is to be evaluated are quite complicated. They may involve content, as well as a set of desirable intellectual and social patterns. For the sake of an example, the objectives of teaching particular courses may be all or several of the following:

- i. To transmit a body of facts, figures and theories etc. (like recording on magnetic tape);
- ii. To create a grasp and an understanding of the theories and principles so that one may apply them to new situations;
- iii. To produce a capacity of critically evaluating hypotheses when they are presented;
- iv. To cultivate an open and flexible mind, so that one may retain the capacity to learn new things in future;
- v. To cultivate an urge for perfection, an appreciation of beauty and inclination to search for newer and better solutions to problems, to discover and invent;
- vi. To train the mind for imagination, intuition and speculation into the realm of the unknown;
- vii. To produce motivation and drive in the individual to result in capacity for sustained intellectual effort, to possibly cultivate qualities of leadership as well as team work;
- viii. To cultivate specific manual skills;
- ix. To train in the ability to communicate at a high intellectual level through specific media and so on.

5. How does one evaluate the performance of a student in such a complicated situation? It is obvious that a versatile set of measuring instruments would be necessary. Fulfillment of some of the objectives can be tested by terminal examinations of the essay type provided a great deal of care is taken—this applies to (i), (ii) and perhaps (iii) and (ix) above. Objective tests can be used for (i) very effectively, but for (ii) and (iii) only with considerable expertise and experience; they cannot be used for (ix) and for many other objectives. Oral or face to face examinations are most suited to a large number of these objectives, and particularly for (iv), (vi), and (viii) and possibly (ix). Special tests have been devised to measure the performance on objectives (iv), (v) and (vi) but they are not yet suitable for frequent use in the class room; (vii) is even more difficult to assess. But an experienced teacher by continuously watching the attitude and reactions of a student to various situations, and by assigning specially designed tasks, can with remarkable consistency, assess the performance of a student on several of the most difficult objectives. The conclusion is that a harmonious set of tests, quizzes, tutorials, home assignments and orals have to be designed if an all-round assessment of the fulfillment of the objectives of a course has to be made. There is no escape from this and no substitute for the teacher in evaluating his students.

6. It is perhaps with this background that the Report of the Education Commission states on p. 290: "A system of internal assessment should be introduced as a supplement to the external examination, based on such periodical evaluations. The results of these assessments should not be mechanically added to the external marks but kept separate and both should be shown side by side in the final certificate. Passes should be required in both and the division gained in them should be shown separately."

7. The only question is that once in a while there may be a tendency to mark high or low deliberately, and there may be pressure to influence internal assessment. Some workable remedies which many institutions have employed in this connection may be :

- i. All internal assessment is open; that is, it is not secret. Marks or grades obtained are known to the students for each assessment as soon as it is made;
- ii. The work or test papers or the assignment on which assessment is made, is returned to the students promptly so that they can compare the grading if they wish, and so that they may approach the teacher if necessary to explain to them how a particular grade is awarded. This is the way in which students may know which mistakes they could avoid in future, and this is the only way to create confidence in the grading.
- iii. In case a student is not satisfied with his grade in spite of (i) and (ii) above, the head of the department or of the college could look into the complaint. A small committee could also be formed to dispose of such complaint expeditiously. The mode of redress has to be decided by institutions in the light of their experience. Some universities which have practiced (i) and (ii) above have the experience that hardly ever does a case have to be referred to the head.

The general level of grading could be reviewed every year, so that in particular cases teachers may receive data to convince them that a marked departure from expected distributions has taken place. In fact the review committee could also look into any possible complaints as stated in (iii) above.

A2. U.G.C. Recommendations on Marks and Grades

1. The present practice in most of our public examinations is to measure the candidate's performance by assigning a mark to an answer script. Suppose, there is a paper of three hours carrying 100 marks. The examiners are asked to award numerical scores while assessing the answer scripts. The marks can range from 0 to 100. This is called the 101 point scale because, including 0, there are in all 101 units of measurement. The implicit meaning of having such 101 steps in marking is that a candidate who scores 46 marks is superior to one who scores 45 marks, and so on. Such an inference could be correct when the mark is a "true" mark. Unfortunately, the mark given by an examiner is a "raw" mark. Such a mark is subject to several uncertainties.

2. The first type of uncertainty is about the thing to be measured which is called the candidate's performance. This is invariably ill-defined. The mark may be a measure of the candidate's ability or knowledge or memory or intelligence or power of expression or a combination of one or more of these characteristics. No one really knows what the examiner has really measured. Therefore, the mark assigned may vary from one examiner to another.

3. The second type of uncertainty arises from the fact that it is assumed that there is a "true" mark for each script. Such a "true" mark can only be assigned by an ideal examiner who does not exist. The actual examiner, at best, makes only an estimate of the "true" mark. This estimate is therefore, a "raw" mark and is subject to considerable error. For some typical papers set at universities, experts have carried out a statistical analysis. Such a statistical analysis has shown that when an examiner assigns a mark to a script, there is 50 per cent chance that his error is greater than 5 per cent. This means that when a candidate is awarded a "raw" mark of 41, the "true" mark may be either above 46 or below 36 in 50 per cent of the cases. Under these circumstances, the 101 point scale where candidates are distinguished in steps of one mark loses all its significance.

4. Quite often, certain marks are laid down as the minimum required for passing, for getting a second class, or for getting a first class. Thus, securing a minimum of 40 per cent marks may be necessary for a pass in a subject. From what has been said in the previous paragraph, it will be seen that this arbitrary minimum is meaningless. It may result in candidates who do not deserve a pass passing and vice-versa.

5. Unfortunately, the public in our country has not been kept informed of the inaccuracies in our current marking scheme. Many of them take the "raw" mark assigned by an examiner as the "true" mark and use the same for a variety of purposes. Thus, a candidate getting 60 per cent marks is regarded as superior to a candidate getting 59.9 per cent marks and gets admission to either higher courses of study or gets a chance for being interviewed for a post. This causes a considerable measure of frustration.

6. It will be seen from the above that the 101 point scale of marking together with the arbitrary minimum for a first, second or pass class is scientifically unsound. It was once adopted when our scientific knowledge about examinations was inadequate. Even with improved information becoming

available about the reliability of such marks, we still continue giving marks in the 101 point scale and furnishing these marks to the student. The unscientific nature of this work and the harm it does to the student population is obvious from the previous paragraphs. One way of preventing authorities making admission to higher courses of study by going entirely on the marks secured by a candidate is to eliminate the 101 point scale from our scheme of working. This will also solve the problem of candidate being called for interviews for posts on the basis of marks. What the authorities need while considering candidates for higher courses or for employment is a prediction of how successful the candidate would be in the expected career. For this purpose, the authorities will have to carry out separate tests specially designed to evaluate the suitability of candidates and not use the marks in examination.

7. If a sample of 100 candidates is taken, assuming a normal distribution, the grading that can be done by a teacher or an examiner is shown in the table below:

Grouping of Pupils by a Teacher

Classification	Grade	Percentage of Population
Outstanding	1	7
Very Good	2	24
Good	3	38
Fair	4	24
Poor	5	7

Grade 3 represents the mean accomplishment of all the candidates appearing in a subject at an examination. In this system of grading, there is no question of failure which is an archaic concept. The last grade, viz., grade 5 where the candidate's performance is poor could be regarded as a failure if one wants to believe in it. Ordinarily, all candidates appearing for an examination are assigned one of the grades as mentioned above in a grade system and this is stated in the certificates issued. It is open to a candidate to sit for an examination again and improve his grade if he so desires.

8. Many countries of the world have given considerable thought to this question of declaring the results of examinations either at a school or at a college or of a public examination. Most countries firmly believe that the only scientific way of sorting out candidates taking an examination is through a system of gradings indicated above.
9. One could think of the grade system indicated above as a five point scale. Looked at this way, we assign to a candidate taking an examination marks in terms of 1,2,3,4,5. Such a scheme is much coarser than the 101 point scale. It is this coarser scale that is practically realizable having regard to the variety of ambiguities which creep in. Under the circumstances, it is most appropriate that the grade system is uniformly adopted in all our examinations in the country.
10. If an overall grade is to be awarded, the grades in individual courses may be weighted according to the credit hours of the courses concerned. For example, if the grades are g_1, g_2, g_3, \dots , and credits for courses are c_1, c_2, c_3, \dots , the average grade would be:

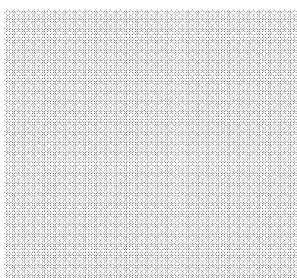
$$\frac{g_1c_1+g_2c_2+g_3c_3+\dots}{c_1+c_2+c_3+\dots}$$

A3. A Marking/Grading Exercise

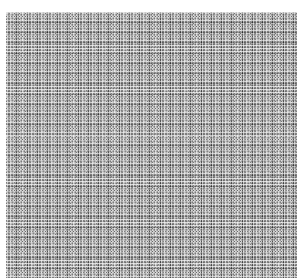
(This page is to be supplied or projected using LCD projector only at the time of actual activity, should not be circulated in advance).

To create food for thought, teachers (in large groups of 50 or 100) can try to grade the darkness of the squares given below in the ranges/grade indicated and analyse the statistics of their answers. (The darkness in each case are different, hence comparisons may be avoided). *It is ideal to use a good quality printout or even view the soft copy of this document on a computer screen.*

I. Mark in the range 0-10,000



(i)/10000

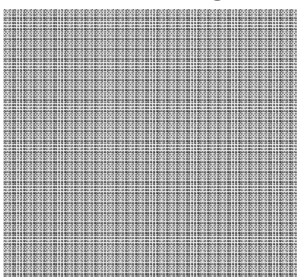


(ii)/10000

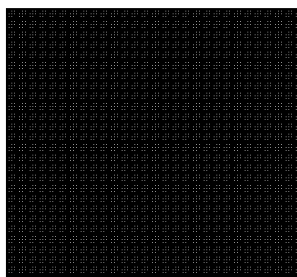


(iii)/10000

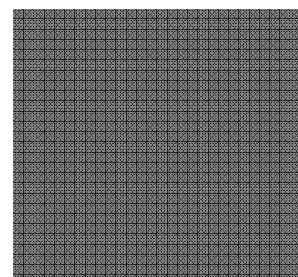
II. Mark in the range 0-10



(i)/10

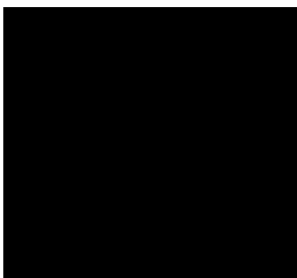


(ii)...../10

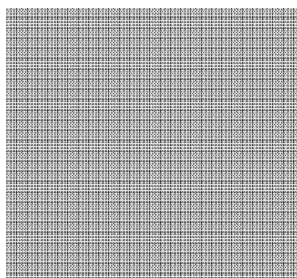


(iii)...../10

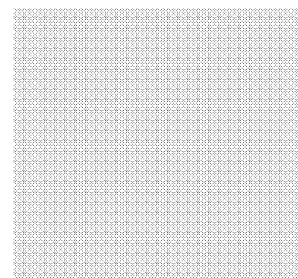
III. Grade into A/B



(iii) A/B



(ii) A/B



(iii) A/B

It is recommended that any discussion/training in grading will benefit from grading sample answer scripts in the respective subjects of the teachers. The question papers should be modified to indicate weightage of questions in place of maximum marks

University of

EXAMINATION DETAILS

Programme	BA/BSc/BCom/BBA/BCA/.....					
Semester						
Course Code						
Course Title						
Date of Exam	Day.....Month.....Year.....				FN/AN	

GRADES AWARDED (TO BE ENTERED BY EXAMINER)

Grade Points: A-4, B-3, C-2, D-1, F-0.

Weightage to be noted from Question Paper

		1	2	3	4	5	6	7	8	9	10	11	12	14	15	Total
(i)	Grade															-----
	Grade Point g															-----
	Weightage w															
	g^*w															
(ii)	Grade															-----
	Grade Point g															-----
	Weightage w															
	g^*w															
(iii)	Grade															-----
	Grade Point g															-----
	Weightage w															
	g^*w															
(iv)	Grade															-----
	Grade Point g															-----
	Weightage w															
	g^*w															

$$\sum w = \dots\dots\dots \sum g^*w = \dots\dots\dots \text{GPA} = \sum g^*w / \sum w \dots\dots\dots$$

Overall Grade Awarded based on GPA (Please Circle)

A	B	C	D	F
3.5-4.0	2.5-3.49	1.5-2.49	0.5-1.49	<0.5

TO BE FILLED IN BY THE CANDIDATE

Course Code						
Course Title						
Date of Exam	Day.....Month.....Year.....				FN/AN	
Reg No (in figures)						
Reg No (in words)						



University of Madras

The Forge, Kotalagiri

SENATE HOUSE,
MADRAS,
MAY 15 5 1917

My dear Davidson.

Your D.O. No. 1781 W-1 (confidential),
of the 4th inst, was forwarded to me here.

The office records show that S. Ramanujam,
the scholar now at Cambridge, appeared for
the scholar now at Cambridge appeared for
failed at the F.A. Examⁿ of 1907, after private
study, 4 years after passing the Matriculation
Examⁿ of 1903. His record is

Date of birth 1888, (June)
Father's name Srinivasa Ayyangar, Myasalai,
Matriculated 1903, from Town High Sch:
Kumbakonam

His marks in the First Examinations in Arts
(as Register number 1198)
of 1907 were

Subject	Max. marks	Minimum required	Marks obtained
English	200	70	38
Sanskrit	100	35	34
Mathematics	150	45	85
Physiology			0
History			0

In all probability he absented himself from the examinations in
Physiology & History (Kumbakonam)