A RATIONAL APPROACH FOR TERM WORK ASSESSMENT

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An Education system consists of three main functions (i) Selection of students (ii) Imparting education and (iii) Assessment of the student. The evaluation is especially necessary where the students are graded for the purpose of awarding degrees by the University/Institution. Even selection of students requires evaluation or assessment if they are selected through competetive examination or interviews. However, if the students sre selected on merit basis, their selection depends on the evaluated performance of previous examination. Further more, in the educational system, the assessment does not only refect the ability of students but also reflects the quality of education imparted by the teachers. Obviously, successful training given to the students depends on the quality of teacher which can also be judged through assessment. It is also observed that no learning process is effective if it has no direct bearing on the examination. Thus assessment is an integral part of every educational process. Therefore, an effective learning process has to be associated with a properly designed system of evaluation.

Leaving aside some of the technical Institutions like I.I.T.s, I.I.SC.,B.I.T.S. and few regional Colleges, which use some process of continuous evaluation, the present method of assessment in most of the Universities involves annual/semester examinations consisting of theory papers, viva-voce, term work and practical examinations. These universities are awarding the degrees normally on the basis of final year examination with the result the students do do not care for their previous examinations. Further more, the university schedule is generally so tight because of the semester system and holding semester examinations and declaring their results that there is no provision for students to improve. However, the students are promoted to higher classes with many carry over papers; this causes the studens to take more time in getting their degrees and in general, they are building their career on poor foundation. Apart from these inherent problems , the evaluation system in these universities suffers from the demerits such as :-

1. It lacks continuous evaluation. Even the sessional (term) work is evaluated by external examiners, who are sometime, assessing the term work of 100 to 200 students in a day.

2. Most of the laboratory examinations are based on viva-voce.

However, in the recent past, some of the universities tried to improve their assessment system by introducing continuous evaluation of the term work at their affiliated colleges. This is a right approach and should be adopted by all the Universities. In this paper, therefore, efforts are put first to indicate the various parameters which influence the performance of laboratory and other term

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work and then to suggest a simple, unbiased and rational procedure to evaluate the student performance in the term work.

Many authors (1,2,3,4,)attempted to compile various factors which should be considered in improving and assessing the students performance in his laboratory or term work assignments. Prasad (3) suggested the outcome of learning as knowledge, comprehension, application, analysis, synthesis, drawing, sketching skills, ability to handle instruments, communication skills, social skill of team work and leader ship together with personal characteristics such as regularity, hard work, inventiveness, orginality, initiative, interest, scientific attitudes, appreciation, creativity etc. Shandilya and Soni [4], however, compiled this outcome in the form sixteen aims of laboratory work.

This clearly points out the need for an evaluation system to assess the students knowledge, intellectual abilities, skill, interests, initiative, industry , discipline attitudes , aspiration etc. All these parameters can not be assessed by an external examiner. Student's own teacher, who is observing the student throughout the course of his study can assess him. Therefore, a progressive or continuous assessment system is highly desirable. Since the evaluation system involves variables of high complex nature such as physical skill, attitude etc., so the system would also be complex. The evaluation system is further influenced by the nature of term work and the tools used for evaluation. Some of the tools of evaluation are observation,class and home assignments, class tests, quizes, group discussions, written term reports, check lists and rating scales for assessing the components like interest, attitude, industry, discipline etc.

Looking into complex nature of the problem, author tried to give a simplified evaluation system. In the present case four types of term work are considered,these are:-

a) Practical - experimental and study types.

b) Drawing.

c) Design.

d) Computer fundamental / computer programming. In each case attendance for both the practical/term work and theory are considered. Some weightage, though small, is given to theory attendence so that students should not avoid lecture classes. Other components of evaluation system include performance (lab.performance, observation, results and discussion, written reports, drawing, sketching skills etc.) Testing of performance (knowledge, intellectual ability), regularity in submission (interest, industry etc.) and student behaviour (discipline, attitude etc.). The weightage of various components and the guidelines to consider various parameters in assessing these components are given in table 1 and its footnotes respectively. The components—attendents and students behaviour—are evaluated at the end of semester but other components—actual work done, remarks on journal/term work and regularity in submission—are assessed continuously after each submission. The testing of performance is carried out progressively through class tests, quizes, viva-voce etc. from time to time. In order to avoid the individual efforts of different teachers and thus to normalise the assessment marks, a systematic coordination at the

level of Head of Departments is essential. If possible the term work of the different colleges should further be normalised by a committee appointed by the University.

These points are further explained below in " case study ".

Case Study :

Here under the assessment of drawing term work for 300 students is described. There were five divisions of 55 to 66 students, each subdivided into three batches of about 18 to 22 students. Nine teachers took the term work classes handling one or more batches.

The term work consisted of eight sheets drawn in class rooms and four home assignment sheets. These sheets were assessed continuously as per the performa shown in table 2. It is obvious from table 2 that each T.W sheet and home assignment were assessed for 15 marks totalling 120 marks for T.W. sheets and 60 marks for home assignments which were divided by 4 to get the marks for T.W. sheets and home assignments for table 1. Maximum marks 15 was chosen for the purpose of easy calculations at the end of semester. Two tests and one preliminary examination were conducted in the semester and the marks thus obtained out of 5 marks for test 1, 10 marks for test 2, and 10 marks for preliminary examination were considered. The regularity in submission was checked by the teachers by noting on each sheet the actual extra time (taken by a student beyond the scheduled date). Marks for regularity in submission were then calculated from the following relation.

Marks for regularity in submission

$$= \frac{Expected\,time\,for\,submission}{Actual\,time\,taken\,in\,submission} \times Max.\,for\,Submission$$

The marks for students behaviour were given by the teachers as per their observations.

Following the procedure as described above, the table 1,was completed by each teacher for his batch seperately and submitted to the Head of the Dept. then called the meeting of all these teachers with their best and worst term reports. All the best and worst reports were then assesed by all the teachers and the average of all such marks for the best and worst reports of each batch were assigned as max. and min. marks for each batch. Corresponding total marks of various components except attendance and regularity in submission were modified using graphical method assuming linear correlation for transformation.

Similarly a coordination committed appointed by the University can asses the best and worst term reports along with few other sample reports for each college and scale down or up the marks by suggesting suitable multiplication factor.This will normalize the marks and avoid the influence of various teachers and institutes as each of them may have different standard of assessment.

The aforementioned evaluation system can not solve the problem if there is any act of prejudical grading for or against particular students either consciously or some times may be unconsciously. If some means is found to minimise them, it will make the evaluation more unbiased.

Conclusion :-

1. A simplified, unbiased and rational continuous evaluation system is suggested.

2. Universities should award degrees considering the performance of student for this complete period of

course rather than only the final year.

If it is felt undesirable to consider 100% performance of each class then some weightage of marks obtained in each class, e.g. 20% of F.E., of S.E., 50% of T.E.& 100% of B.E., should be accounted in awarding the final degree.

References :-

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Foot Notes :-

1. Journal / Write up marks will be evaluated based on,
   Objective, Procedure, Theory, Figures etc. (10),observation, Calculations & Graphs (10), Result(05), Precautions and Neatness etc. (05).

2. Journal / Write up marks will be evaluated based on
   objective, Procedure, Figures etc. (25) and Precautions and Neatness etc. (05)

3. The T.W.sheets and H.A. sheets will be checked taking into consideration Name Plate, Correctness of drawing, line work, Dimensioning, Neatness.

4. The T.W. sheets and H.A. sheets will be checked taking into consideration. Conceptual design/design procedure, design calculations, component drawings and Assembly drawing.

5. Computer T.W. (Practical) will be checked taking into consideration.

a) Mathematical Modelling (05),

b) Flow chart (05) and

c) Computer Programming including Conceptual design / design procedure,design calculations, component drawings and Assembly drawing.

6. In testing the performance of an individual we may include,
   class tests, preliminary examination, quiz and viva.

i) Preliminary Examination should not be considered for Practicals; may be considered for T.W.

ii) Class tests should have the weightage at least 50% of the total weightage for testing the performance.

TABLE : 1   SYSTEM OF EVALUATION FOR TERM WORK

	ATTENDANCE PR/TW	ATTENDANCE THEORY	PERFORMANCE — ACTUAL WORK DONE	PERFORMANCE — TESTING OF PERFORMANCE	REMARKS ON JOURNAL/TW	REGULARITY IN SUBMISSION	STUDENT BEHAVIOUR	TOTAL
GENERAL	10	05	45-50	20-25	05	10	05	100
1. PRACTICAL			LAB. PERFORM REPORT	TEST/QUIZ/VIVA				
a. Experiments	10	05	15 30[1]	20	05	10	05	100
b. Study	10	05	15 30[2]	20	05	10	05	100
2. Drawing (TW)	10	05	TW. SHEET 30[3]	H.A. 15[3] TESTS 1. 5 2. 10 PRELIM 10	--	10	05	100
3. Design (TW)	10	05	TW.SHEET 35 15[4]	H.A. TEST/QUIZ/VIVA 20	--	10	05	100
4. Computer	10	05	TW.SHEET 40[5] 10	H.A. TEST/QUIZ/VIVA 20	--	10	05	100

TABLE : 2 -

ASSESSMENT OF ENGINEERING GRAPHICS TERM WORK & HOME ASSIGNMENTS

CLASS : F. E **BATCH NO : _____** **NAME OF TEACHER : _____**

ROLL NO.	SHEET NO.	TERM WORK								TOTAL		HOME ASSIGNMENT				TOTAL		GRAND TOTAL
		1	2	3	4	5	6	7	8			1	2	3	4			
		15	15	15	15	15	15	15	15	120	120	15	15	15	15	60	15	45