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शिवाजी विद्यापीठ, कोल्हापूर - ४१६ ००४.

★★★★★B+
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दुरध्वनी : (ईपीएबीएक्स) २६०९००० विस्तारीत क्र. २६०९०९४) तार : युनिशिवाजी
फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३. e-mail : bos@unishivaji.ac.in

Ref.No./SU/BOS/ENGG/9739

Date : 1/11/2008

To,

The Co-Ordinator

1. B.Tech. in Chemical Technology
2. B.Tech. in Computer Science & Technology
3. B.Tech. in Electronics & Communication Technology
4. B.Tech. in Food Technology
5. B.Tech. in Environmental Science & Technology

Subject–Regarding the Rules, Regulations, Structure, Internal Assessment Scheme, Nature of Question Paper and Rules of Credit System at B.Tech course under the Faculty of Engineering and Technology.

Sir/Madam,

With reference to the subject cited above, I am directed to inform you that the University authorities have recently accepted & granted permission to implement the Rules, Regulations, Structure, Internal Assessment Scheme, Nature of Question Paper and Rules of Credit System at B.Tech course under the Faculty of Engineering and Technology. from the Academic Year 2008 -09

(i.e. July -2008) onwards.

It is hereby informed that, the said rules are also available on university website www.unishivaji.ac.in.

Please bring this to the notice of all teachers and students concerned

Thanking you,

Yours faithfully,

-Sd-
Registrar

Encl-As above

Copy f.w. cs.

- 1.Dr. C. R. Rao
Dean, Faculty of Engineering and Technology.
- 2.Dr. S.R. Sawant
Chairman, Ad-hoc Board in Technology.
for information

Copy to :

1. Appointment Section
- 2.O. E. 4 Section
- 3.Affiliation Section



SHIVAJI UNIVERSITY, KOLHAPUR

Rules, Regulations and Structure for Four year B.Tech. Course

R.B.T.-01:- No Candidate shall be admitted to the course leading to Degree of Bachelor of Technology unless:-

He/She has passed the Higher Secondary Certificate (Standard XII) Examination of the Maharashtra State Board of Secondary and Higher Secondary Education, Pune or its equivalent examination with English, Physics, Chemistry and Mathematics and with not less than 50 percent marks (45 percent marks for Backward Class Candidates from Maharashtra State only) in the subjects of Physics, Chemistry and Mathematics taken together at one and the same sitting.

OR

He/She has passed the Indian School Certificate (Standard XII) Examination or any other equivalent Higher Secondary (Standard XII) Examination of a Council or Board outside Maharashtra State with English, Physics, Chemistry and Mathematics and with not less than 50 percent marks (45 percent marks or Backward class candidates from Maharashtra State only) in the subjects of Physics, Chemistry and Mathematics taken together at one and the same sitting.

R.B.T.-02:- A candidate, to be eligible for a Degree will be required to pass examinations as under:-

First Examination in Technology	Sem. I & II
Second Examination in Technology	Sem. III & IV
Third Examination in Technology	Sem. V & VI
Fourth (Final) Examination in Technology	Sem. VII & VIII

R.B.T.-03:- No candidate will be admitted to any examination unless he keep terms at a concerned Department of the University, and produces, from the Co-ordinator of the Department, testimonials of:

- Satisfactory attendance at the theory, practical and term work classes as prescribed.
- Satisfactory completion of the term-work prescribed for the Sem. and Passing in the term work by securing atleast 40% marks and equivalent credits out of the maximum prescribed for the entire term-work.

R.B.T.-04:-

- a) A candidate who fails at his B.Tech. First Year Sem.-Ist Examination will be allowed to keep term for his B.Tech. First Year Sem.-IInd Examination.
- b) A candidate who fails at his B.Tech. Second Year Sem.-IIIrd Examination will be allowed to keep term for his B.Tech. Second Year Sem-IVth Examination.
- c) A candidate who fails at his B.Tech. Third Year Sem-Vth Examination will be allowed to keep term for his B.Tech. Third Year Sem-VIth Examination.
- d) A candidate who fails at his B.Tech. Fourth (Final) Year Sem-VIIth Examination will be allowed to keep term for his B.Tech. Fourth (Final) Year Sem-VIIIth Examination.

R.B.T.-05:-

- a) A candidate who fails in not more than three heads of passing including aggregate at B.Tech. First Year, B.Tech. Second Year, B.Tech. Third Year Examination will be permitted to keep terms to the higher class namely B.Tech. Second Year, B.Tech. Third Year, B.Tech. Forth Year (Final year) Examination.
- b) A Candidate who fails in more than three heads of passing including aggregate at B.Tech. First Year, B.Tech. Second Year, B.Tech. Third Year Course Examination will not be permitted to keep terms in the higher class viz. B.Tech. Second Year, B.Tech. Third Year, B.Tech. Forth Year (Final year) Course Examination.

R.B.T.-06:-

- a) No candidate will be admitted to the B.Tech. Second Year Sem. IIIrd course unless he-
 - i) Pass his B.Tech. First Year Sem-I & II examination.

OR

- ii) fails in not more than three heads of passing at the B.Tech. First Year Sem. I and B.Tech. First Year Sem. II examinations in accordance with R.B.Tech.5(a) within a period of three academic years from the date of his admission to the B.Tech. First Year Sem-I Course.
- b) No candidate will be admitted to the B.Tech. Third Year Sem-Vth Course unless he-
 - i) Passes his B.Tech. First Year Sem.-I, B.Tech. First Year Sem.-II and B.Tech. Second Year Sem.-II Examinations.

OR

- ii) Passes his B.Tech. First Year Sem.-I and B.Tech. First Year Sem.-II examinations, and fails in not more than three heads of passing at the B.Tech.

Second Year Sem.-I & B.Tech. Second Year Sem.-II Examinations in accordance with R.B.Tech. 5(a)

- c) No candidate will be admitted to the B.E. Sem. I Course unless he-
- i) Passes his B.Tech. First Year Sem.-I and B.Tech. First Year Sem.-II, B.Tech. Second Year Sem.-I & B.Tech. Second Year Sem.-II and B.Tech. Third Year Sem.-I & B.Tech. Third Year Sem.- II Examinations.

OR

- ii) Passes his B.Tech. First Year Sem.-I, B.Tech. First Year Sem.-II, B.Tech. Second Year Sem.-I, B.Tech. Second Year Sem.-II examinations, and fails in not more than three heads of passing at the B.Tech. Third Year Sem.-I & B.Tech. Third Year Sem.- II Examinations in accordance with R.B.Tech.5(a).

R.B.T.-07:-

- a) A candidate passing in the minimum prescribed Period of Final Diploma Examination of the Board of Technical Examinations, Maharashtra state or any other Examination held equivalent to the Final Diploma Examination of B.T.E.M.S. in First Class in concerned branches are eligible for admission to B.Tech. Second Year Sem.-III as stated below:-

B.Tech. in Chemical Technology	– Diploma in Chemical Technology
B.Tech. in Computer Science & Technology	– Diploma in Computer Science and Technology
B.Tech. in Electronics & Communication Technology	– Diploma in Electronics & Communication Technology
B.Tech. in Food Technology	– Diploma in Chemical / Food Technology
B.Tech. in Environmental Science & Technology	– Diploma in Civil

- b) The candidates domiciled outside the state of Maharashtra are not eligible for direct admission.

R.B.T.-08:- The teaching and examinations scheme shall be according to the structure and syllabi prescribed, subject to such revision, modification, etc. made from time to time.

R.B.T.-09:- At each Sem. examination for Sem.wise system and yearly Examination for yearly courses:

1. Paper Total
2. Practical and Oral taken together
3. Term-Work
4. Oral

The above subjects/heads, shall each constitute a separate head of passing. Aggregate of each semester/annual shall be constitute a separate head of passing.

Term-Work

R.B.T.-10:- In respect of Term- work, a target date shall be fixed for the completion of each sheet, job, Project, experiment or assignment and the same complete or incomplete shall be collected on the target date and assessed immediately at the respective departments by the concerned teachers and marks shall be submitted to the Co-ordinator. The Co-ordinator of the Technology shall communicate these marks to the University within a week after the end of each term.

R.B.T.-11:-

- a) Term work and performance at practical/oral examination shall be assessed on the basis of the depth of understanding of principles involved and not on the basis of more correctness of results of appearance. Ornamentation is, therefore, not expected and will not be given credit.
- b) The term-work assessment will be done by the internal concerned teacher continuously and if necessary, by and oral Examination.

R.B.T.-12:-

- i) When term-work in any subject is assessed the marks will be carried over to subsequent examination, unless the candidate rejoins an affiliated college as a regular students in the corresponding Sem./year and chooses to submit a fresh term-work.
- ii) Marks obtained in the class tests will also be similarly carried over to the subsequent examination, except in the case of those who rejoin an affiliated college as regular students.
- iii) A candidate whose marks are thus carried over is eligible for award of class.

R.B.T.-13:-

1. Marks obtained by a candidate in Practical and/or Oral Examinations will at his option, be carried over to subsequent examinations, wherever practical and oral are prescribed as separate heads of passing in a subject, the same be combined into one head of passing. i.e. "Practical and Oral Examinations."
2. The number of optional questions in a theory paper per section shall be atleast 25 percent of the maximum number of questions required to be attempted.

R.B.T.-14:-

The candidate is eligible to appear for the final examination, those who has attended minimum 75% of theory, practical & classes for each subject.

Standard of Passing

To pass the Examination, a candidate must obtain:

- i) a minimum of 40% marks (Grade DD=4) in each head of passing excepting aggregate, and
- ii) a minimum of 45% marks (CPI > 4.5) in the aggregate.

The award of class for the Degree of Bachelor of Technology shall be based on the aggregate of the marks, obtained together at first to final year B.Tech. Examination, as under:-

Minimum 45% marks for Pass Class (CPI > 4.5)

Minimum 50% marks for Second Class (CPI > 5)

Minimum 60% marks for First Class (CPI > 6)

Minimum 66% marks for First Class with Distinction. (CPI > 7)

R.B.T.-15:-

A Candidate who fails to clear all heads of passing (Including aggregate marks) at an Examination may be exempted at a subsequent attempts from appearing in a head or heads of passing in which he/she has secured 40% (minimum grade DD) or more marks and these marks will be carried over for the purposes of aggregate and he will be declared to have passed in the examination when he passes according to R.T.9

R.B.T.-16 :-

- a) A candidate who has cleared all heads of passing but has failed in aggregate for passing the examination has a choice to reappear for any heads/so as to enable him to secure aggregate marks.
- b) The class be awarded for the B.Tech. course on the basis of actual number of marks obtained irrespective of final year Sem. VII & VIII.
- c) A candidate passing in the remaining Paper/s of B. Tech. Third Year Examination after clearing the papers of B.Tech. Examination in not more than two, examination sessions shall also be held eligible for award of class but he will not eligible for prizes, medals ranks etc.

Rules of Credit System at B.Tech. Courses

Introduce internal assessment and the credit system (relative grading system) for all the B.Tech. Courses from the academic year 2008-09. The internal assessment scheme of (20% to 50%) marks for every subject (theory / practical) for which there is university examination.

Relative Grading

RELATIVE GRADING : A confused art?

IIT Kanpur was set up with aid from the United States of America. Many ideas and things were shipped from Washington DC to Kanpur. When a packet from one of these shipments was opened, a brilliant proposal of adopting “relative grading” emerged. And IIT Kanpur was amongst the first, in the country to adopt this relative method of evaluating performance. However, over the years, the brilliance of the proposal occasionally appears to have tarnished in places. Relative grading invests instructors with great flexibility and responsibility, giving rise to many interpretations of relative grading. Students sense an inconsistency across the instructors, and sometimes find reason to complain. Is it time to take another look at the system of relative grading, and how it is conducted in the Institute?

Absolute vs Relative Grading

The traditional method of evaluating student performance is the absolute grading approach. Here, a student’s performance in a course is qualified as a percentage of marks. Then absolute cutoff levels are used on the average of percentages of marks in all courses to summaries the overall performance of the student. The threshold levels are:

I Class with Distinction	> 75%
I Class	60-75%
II Class	45-60%
III Class	35-45%
Failed	< 35%

In the above method, when more weightage is to be assigned to some courses, such preferred courses are given a total weightage of say, 200 marks as against 100 marks. Absolute grading is convenient when the class size is

large, e.g. a state university having over 1000 students in a particular class, though at different colleges. Here, it must be kept in mind that although the students may be studying at different colleges, they share the similar facilities in terms of infrastructure and quality of instructors, and have a common syllabus and the same question paper.

IIT Kanpur follows the system of Relative Grading. Under this approach, student performances are first quantified as marks. Then, the instructor assigns the following letter grades:

A	Outstanding Performance
B	Good Performance
C	Fair Performance
D	Satisfactory Performance
E	Poor Performance
F	Unsatisfactory Performance

The degree of difficulty in the various examination papers, the leniency exercised in giving partial credits for incomplete responses, and the instructors overall assessment of the student's understanding of the subject, form the input to awarding letter grades.

Some Interpretations

Relative Grading belongs to an academic environment that has a dynamic system where content and treatment of the subject keep changing, depending upon the instructor and on the changes taking place in the fields of engineering and technology. Absolute Grading depends upon the syllabus, the question paper and the leniency in awarding marks, all of which may vary from one institute to another. Relative grading counters these inconsistencies by evaluating a student vis-à-vis his/her own class. On knowing the quality of the institute to which the student belongs, a fairly accurate judgment of his/her caliber can be made on the basis of (relative) grades. Relative grading has the further advantage of removing the fine edge of cut-throat competition for marks among students.

Clearly, assigning letter grades based on marks obtained is a crucial task and this onus lies on the instructor. In fact, no one can question his/her decision. Instructors need to ensure that they shoulder this responsibility with care. A

clearly defined evaluation system must be employed, e.g., mid-semester exams, home assignments, quizzes, term papers, seminars and final examination, with pre-specified weightages for each of these elements. This should be adhered to consistently during the course of the semester. Any carelessness in this respect is likely to not only provide an incorrect picture of students' caliber, but also result in the loss of confidence of students.

One criticism that some instructors face is that they inflate grades to become "popular" amongst students. Another major grouse of students is regarding the number of 'A' grades awarded for a course. Some instructors assign "A" grades liberally, and some others are free with "F" grades. The most criticized situation is when a student of good standing (based on his past records at the Institute) does poorly in a certain course; he is still awarded a good grade.

Steps for Bringing in Consistency . . .

At the outset, it is clear that both "A" and "F" grades must definitely be earned, while the other grades may usually be awarded. So, only deserving candidates should get "A" and "F" grades. This reflects the true potential of students, particularly to the prospective employers who wish to recruit the students.

When the class size is large (e.g. in B.Tech. courses),

it may be desirable to ensure the numbers of "A" and "B" grades together is close to the number of "C" and "D" grades together. And when the class size is small, the above may not be possible.

but it is important to ensure that the thresholds that discriminate between "A" and "B" grades, and between "C" and "D" grades, should be chosen carefully. To be able to distinguish between students deserving different letter grades, a good distribution of marks obtained by the class is essential at the end of the semester. And, this is possible by employing question papers having questions that require distinctly different levels of scholastic ability. This must be ably supported by a very objective way of giving partial credit for insufficient responses.

Look ahead ...

Clearly, when the entire responsibility is placed on the instructor alone, inconsistencies are bound to occur. Instructors who are new to relative grading are better off discussing with fellow instructors to understand how they are doing it. One may only observe trends in the practice of doing relative grading, as there is no one answers for all situations. Judiciousness must be exercised to blend objectivity of performance with the subjectivity involved in gathering whether the student has learnt the subject matter ... for relative grading is an art!

Shivaji University proposes the following grading system as shown in the table .

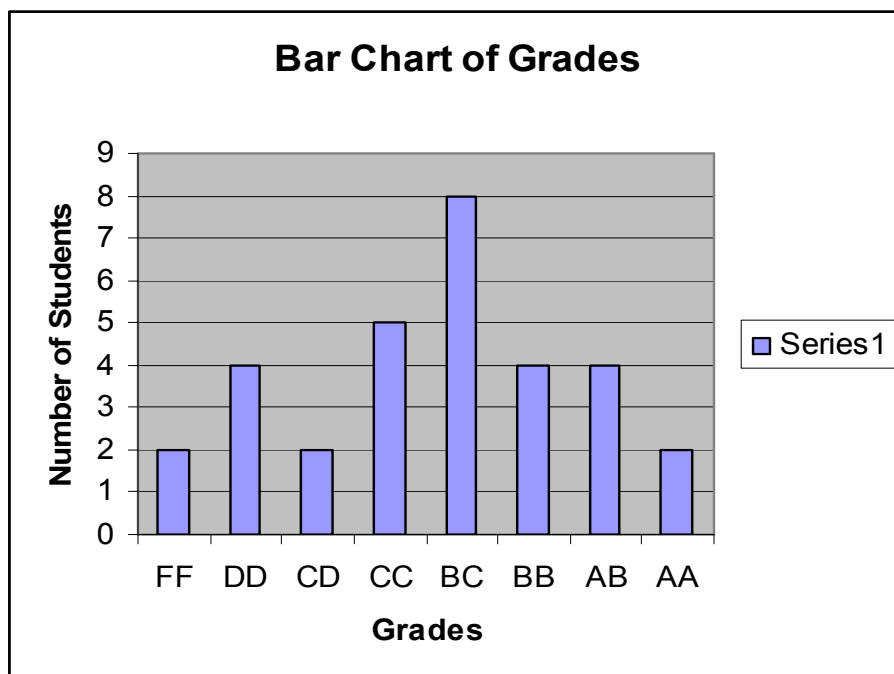
FF	0
DD	4
CD	5
CC	6
BC	7
BB	8
AB	9
AA	10

Sample marks obtained by one class having 31 students are shown in table.

Roll No.	Marks obtained	Corrected Marks	Out of 10 point	Grade Awarded
1	63	84.3	8	BB
2	43	57.5	6	CC
3	70	93.6	9	AB
4	17	22.7	2	FF
5	34	45.5	5	CD
6	67	89.6	9	AB
7	76	101.7	10	AA
8	54	72.2	7	BC
9	34	45.5	5	CD
10	23	30.8	3	FF
11	67	89.6	9	AB
12	80	107	11	AA
13	30	40.1	4	DD
14	45	60.2	6	CC
15	48	64.2	6	CC
16	62	82.9	8	BB
17	44	58.9	6	CC
18	57	76.2	8	BB
19	45	60.2	6	CC
20	49	65.5	7	BC
21	61	81.6	8	BB
22	52	69.6	7	BC
23	53	70.9	7	BC
24	54	72.2	7	BC
25	55	73.6	7	BC
26	51	68.2	7	BC
27	56	74.9	7	BC
28	70	93.6	9	AB
29	30	40.1	4	DD
30	30	40.1	4	DD
31	30	40.1	4	DD
Max Marks	80			

Table Distribution of Grades

Grade	Students	Percent
FF	2	6
DD	4	13
CD	2	6
CC	5	16
BC	8	26
BB	4	13
AB	4	13
AA	2	6
Total	31	
Number of FF+DD	6	
Number of AA+BB	6	



System of Evaluation and award of degree

At the end of every semester, a student is awarded a grade based on his/her performance in examinations and or assignments, in every course registered by him/her. These grades are described by the letters AA, AB, BB, etc. and have a numerical equivalent called grade point.

After successful completion of programme a degree is awarded without mention of Rank/class. However, CPI of 6.5 and above may be considered equivalent to a First Class. Rank in a class is not certified except for first position in a class on year basis only. Minimum passing grade is DD.

The grade FF are taken in to consideration while calculating SPI and CPI, however these will be replaced only after the clearance of the course with the passing grade.

The performance of the student in a semester is indicated by a number called the Semester Performance Index (SPI). The SPI is the weighted average of the grade points obtained in all the courses taken by the student during the semester. Example Suppose in a given semester a student has taken 5 courses and his/her having credits C₁, C₂, C₃, C₄, C₅ and his/her numerical equivalent of grades in those courses are g₁, g₂, g₃, g₄, g₅ respectively.

Then his/her

$$SPI = \frac{C_1g_1 + C_2g_2 + C_3g_3 + C_4g_4 + C_5g_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

SPI will be calculated after re examination if any up to 2 decimal points on the basis of the final grades. An up to date assessment from the time the student entered the institute is obtained by calculating Cumulative Performance Index (CPI). The CPI is the weighted average of the grade points in all the courses taken by the students since he/she enters the institute. It is calculated in the same manner as SPI. The student is allowed to take minimum one interdisciplinary course in one year. The student must take at least 4 courses in 4 years duration.

Scheme of Internal Assessment

1. There shall be internal assessment range of (20% to 50%) marks and the final examination of (80% to 50%) marks. For 50% Internal test if implemented
Test 20%
Mid Semester 30%
Final examination of 50%
2. For every theory paper two tests each of 20% marks will be conducted in every semester and the average of the marks scored in the two examinations will be carried for the final score.
3. The University examination will be of 80% marks.
4. The same schemes apply for the practical courses which have university examinations.
5. The internal assessment scheme is not applicable for the term work and tutorials or to the practical and theory courses for which there is no University examinations.

The nature of the Question Paper for the University examination.

1. Every theory paper shall be of 80 marks and of 3 hrs duration.
2. There will be two sections in every paper each carrying 40 marks.
3. Four questions will be asked in every section. Q.1 from section – I will be compulsory and will carry 14 marks. Q.5 from section-II will be compulsory and will carry 14 marks. Remaining questions will carry 13 marks each. Students will have to attempt any two questions each from section-I and section – II.
4. Q.1 and Q.5 will have two sub questions. A) and B)
A) Objective type question. (8) marks
Four multiple type questions (4) marks and four true or false (4) marks.
B) Short answer questions (any two) (6) marks
Q.1 will be based on all the units from section-I while Q.5 will be based on all the units from section – II.
5. Remaining questions will be combination of short answer type and long answer type questions or long answer type questions alone.
6. The theory paper of Engineering Graphics will have the following nature
- Compulsory questions 1 and 5 are will carry 20 marks each. A student will have to attempt any two questions out of the remaining 3 questions from each section and every question will carry 10 marks.
- This paper will be of 4 hours duration.
7. Declaration of the result it is proposed to have full autonomy for the B.Tech. courses which will enable declaration of the final result within one week from the day of final examination.
8. The nature of the internal examination be kept flexible so that depending upon the course content there can be variations in the questions.

The nature of question paper for the Internal examination.

1. Every theory paper shall be of 20 marks.
2. There will be two questions every paper.
3. Q.1 will be objective type and carries 8 marks.
4 – multiple choice questions and
4 – true and false type questions.
4. A) Q.2 carries 12 marks.
It can be short answer type questions (any 3 out of 4)
OR one short answer of 4 marks and other long answer of 8 marks.
OR one long answer of 12 marks.
4. (B) The nature of Engineering Graphics paper will be as follows :
Every question will be of 10 marks and there will be no objective type question.
5. Declaration of the results : the result of any internal test conducted shall be declared on the notice board within 48 hours of the examination and the answer-sheets will be shown to the students in the classroom and their queries if any or corrections if any will be immediately rectified.
6. In future surprise test will also be introduced as a part of internal examination. However student will have full idea about the structure and topics for this test.

It was also discussed whether the grade calculation should be as per the credit system adopted by the University which is a sort of direct conversion or there should be relative grading system which is adopted in various IIT's in the country.