

# Implementation of Grading System Under Autonomy

**Academic Session 2014-15**



**Yeshwantrao Chavan College of Engineering**

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## **Criteria for Evaluation, Grading, SGPA and CGPA**

YCCE became autonomous institute from academic session 2010-11 and implementing academic autonomy in progressive manner from the batch admitted in 2010-11. YCCE adopted semester, credit and grade based autonomous working system with relative grading.

### **1. Continuous Evaluation:-**

**Proportional weightage of continuous internal assessment and final examination:**

<b>For Theory Courses</b>			
<b>SN</b>		<b>Activity</b>	<b>% Weightage</b>
1		MSE 1	15
2		MSE 2	15
3		TA	10
4		ESE	60
Grand Total			100

**Equal weightage to all units of the courses during all examinations in a semester**

<b>Unit</b>	<b>MSE 1</b>	<b>MSE 2</b>	<b>ESE</b>	<b>Total</b>
1	7.5		7.5	15
2	7.5		7.5	15
3		7.5	7.5	15
4		7.5	7.5	15
5			15	15
6			15	15
<b>Column Totals</b>	<b>15</b>	<b>15</b>	<b>60</b>	<b>90</b>

### **Assessment of non-theory courses**

- Continuous Assessment in every practical class
- The grades are awarded on each practical
- Teachers announce the criteria for grade allotment at start of courses.
- Students know the grades allotted to them in each practical assignments/ performance.
- Continuous evaluation 40 marks & ESE 60 marks = total 100 marks

## 2. The Grading System:-

The marks obtained out of 100 are converted to grades as per given table:

For the award of grades in a course, all component-wise evaluation is done in marks. The marks of different components viz. Teachers Assessment (TA), Mid-Semester Examinations (MSE), End-Semester-Examination (ESE), are reduced to relative weightages of each component as given in Scheme of Examination. Marks so obtained would be converted to grades at the end of semester, as per the guidelines given below:

- 2.1. If sample size (number of students appearing in a course) is **less than 30** then **absolute grading system** is used as per **Table No. 1**.

**Table 1. Awards of Grade Using Absolute Method**

Range of Marks	Grades
Marks equal to or greater than 90 %	A <sup>+</sup>
Marks equal to or greater than 80% but less than 90%	A
Marks equal to or greater than 72 % but less than 80%	B <sup>+</sup>
Marks equal to or greater than 64 % but less than 72%	B
Marks equal to or greater than 56% but less than 64%	C <sup>+</sup>
Marks equal to or greater than 48% but less than 56%	C
Marks equal to or greater than 40 % but less than 48%	D
Marks less than 40%	F

- 2.2. If sample size (number of students appearing in a course) is **greater than 30** then **Relative Grading System** is used as per **Table No. 2. (Normally used for B.E. Regular Term)**

Average ( $\bar{X}$ ) and standard deviation ( $\sigma$ ) should be calculated as per the following equations.

$$\text{Average} = \bar{X} = \frac{\sum \text{Marks}}{n}$$

Where,  $n$  = Total No. of Examinee - Detained Examinee

$$\text{Standard deviation} = \sqrt{\frac{\sum (X - \bar{X})^2}{(n-1)}} \quad \text{Where } X = \text{Individual marks of each students.}$$

**Table 2 : Awards of Grade Using Relative Grading System**

RANGE OF MARKS			GRADE ALLOTTED
	Marks obtained	$\geq \text{Average} + 1.5 \sigma$	A <sup>+</sup>
Average + 1.5 $\sigma$ >	Marks obtained	$\geq \text{Average} + 1.0 \sigma$	A
Average + 1.0 $\sigma$ >	Marks obtained	$\geq \text{Average} + 0.5 \sigma$	B <sup>+</sup>
Average + 0.5 $\sigma$ >	Marks obtained	$\geq \text{Average}$	B
Average >	Marks obtained	$\geq \text{Average} - 0.5 \sigma$	C <sup>+</sup>
Average - 0.5 $\sigma$ >	Marks obtained	$\geq \text{Average} - 1.0 \sigma$	C
Average - 1.0 $\sigma$ >	Marks obtained	$\geq \text{Average} - 1.5 \sigma$	D
	Marks obtained	$\leq \text{Average} - 1.5 \sigma$	F

**For Theory:** The cutoff used for “F” grade is 40 marks, i.e. if marks obtained are **less than 40** then student will be declared as FAIL in that particular theory subject irrespective of value of cutoff for “F” grade.

**For Practical:** The cutoff used for “F” grade is 50 marks, i.e. if marks obtained are **less than 50** then student will be declared as FAIL in that particular practical subject irrespective of value of cutoff for “F” grade.

**Note: Result Review and Moderation Committee can moderate the result.**

### 2.3. Table used for Grade to Grade Point Conversion:

Academic Performance	Grades	Grade Points
Outstanding	A <sup>+</sup>	10
Excellent	A	9
Very Good	B <sup>+</sup>	8.25
Good	B	7.50
Average	C <sup>+</sup>	6.75
Below Average	C	6
Marginal	D	5
Poor	F	0
Satisfactory completion of Audit Course	G	-
Non completion of Audit Course	H	-
Incomplete Course requirements (Detention)	I	-
Temporary Withdrawal	W	-
Non Completion of Project, Extension in Projects	Z	-

## 3. Method of Calculation of Grade Point Averages (SGPA / CGPA):

### 3.1. Calculation of Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by a number called SGPA. The SGPA is the weighted average of the grade points obtained in all the courses registered by the student during the semester.

$$SGPA = \frac{\sum C_i P_i}{\sum C_i}$$

where,

$C_i$  = The number of credits for the  $i^{\text{th}}$  course of a semester for which SGPA is to be calculated.

$P_i$  = Grade points earned in the  $i^{\text{th}}$  course.

$i = 1, 2, \dots, n$  represent the number of courses in which a student is registered in the concerned semester. The SGPA is calculated to two decimal places.

### 3.2. Calculation of Cumulative Grade Point Average (CGPA)

An up to date assessment of the overall performance of a student from the time of his first registration is obtained by calculating a number called CGPA, which is weighted average of the grade points obtained in all the courses registered by the student since he entered the Institution.

$$CGPA = \frac{\sum C_j P_j}{\sum C_j}$$

Where,

$C_j$  = The number of credits for the  $j^{\text{th}}$  course up to the semester for which CGPA is to be calculated

$P_j$  = Grade points earned in the  $j^{\text{th}}$  course.

$j = 1, 2, \dots, m$  represent the number of courses in which a student is registered up to the semester for which the CGPA is to be calculated. The CGPA is also calculated to two decimal places.

**Note:**

- As seen from above formula CGPA is **not average** of SGPA
- DIVISION /CLASS: As per AICTE guidelines is
  - If SGPA (CGPA)  $\geq 8.25$  then Distinction Class
  - If SGPA (CGPA)  $\geq 6.75$  then First Class

**4. Example:-**

Suppose there are n no. of students appearing for the same subject and each student will score some marks out of 100. The average of marks scored by all n students is called as " $\bar{X}$ ".

The standard deviation ( $\sigma$ ) is also calculated by the formula given in section 2. For each subject value of " $\bar{X}$ " and " $\sigma$ " is different, and then the cutoffs for different grades are calculated as per table 2.

For example for semester 1 there are 400 students appearing for 5 theory and 3 practical subjects and the average marks, std. deviation and cutoffs (using Table 2) for each subject are as follows:

		S1	S2	S3	S4	S5	L1	L2	L3
<b>Average</b> ( $\bar{X}$ )		<b>57.77</b>	<b>49.28</b>	<b>48.43</b>	<b>45.97</b>	<b>52.57</b>	<b>69.63</b>	<b>72.23</b>	<b>78.20</b>
<b>Std. Dev.</b> ( $\sigma$ )		<b>14.96</b>	<b>12.89</b>	<b>11.16</b>	<b>11.37</b>	<b>12.82</b>	<b>6.72</b>	<b>9.32</b>	<b>5.11</b>
<b>A+</b>	<b>X + 1.5 <math>\sigma</math></b>	80	68	64	63	71	79	86	85
<b>A</b>	<b>X + 1.0 <math>\sigma</math></b>	72	62	58	57	64	76	82	83
<b>B+</b>	<b>X + 0.5 <math>\sigma</math></b>	65	55	53	51	58	73	77	81
<b>B</b>	<b>X</b>	57	49	48	46	52	70	72	78
<b>C+</b>	<b>X - 0.5 <math>\sigma</math></b>	50	42	42	40	45	66	68	76
<b>C</b>	<b>X - 1.0 <math>\sigma</math></b>	42	40	40		40	63	63	73
<b>D</b>	<b>X - 1.5 <math>\sigma</math></b>	40					50	50	50
<b>F</b>		39	39	39	39	39	49	49	49

These subject wise cutoffs are used to convert marks to grade

#### 4.1. Example: Grade allotment of particular student having Registration No. 1001999

Semester I					
Registration No. 1001999					
Subject	Credits (C)	Marks obtained	Grade	Grade Point (Pi)	Ci x Pi
S1	4	82	A+	10	40
S2	4	56	B+	8.25	33
S3	4	68	A+	10	40
S4	4	60	A	9	36
S5	4	67	A	9	36
LAB1	1	70	B	7.5	7.5
LAB2	2	90	A+	10	20
LAB3	1	80	B	7.5	7.5
	24				220

Total credits of Semester I is 24 ( $\sum C_i$ )

Total earned grade points of Semester I is 220 ( $\sum C_i \times P_i$ )

$$SGPA = \frac{\sum C_i P_i}{\sum C_i}$$

$$SGPA (\text{Semester I}) = 220 / 24 = 9.16$$

#### 4.2. Example: Grade allotment of same student for next semester

Semester II					
Registration No. 1001999					
Subject	Credits (C)	Marks obtained	Grade	Grade Point (Pi)	Ci x Pi
S1	4	42	D	5	20
S2	4	68	B+	8.25	33
S3	3	67	B	7.5	22.5
S4	4	58	C+	6.75	27
S5	3	85	A	9	27
LAB1	1	82	A	9	9
LAB2	1	73	B+	8.25	8.25
LAB3	2	79	B+	8.25	16.5
	22				163.25

Total credits of Semester II is 22 ( $\sum C_i$ )

Total earned grade points of Semester II is 163.25 ( $\sum C_i \times P_i$ )

$$SGPA (\text{Semester II}) = 163.25 / 22 = 7.42$$

**To calculate CGPA**

Total credits of semester I and II is  $24 + 22 = 46$  ( $\sum C_j$ )

Total earned grade points of semester I and II is

$$(\sum C_j \times P_j) = 220 + 163.25 = 383.25$$

$$CGPA = \frac{\sum C_j P_j}{\sum C_j}$$

**CGPA (Semester I and II) =  $383.25 / 46 = 8.33$**

**Important points to be noted:**

- The CGPA is cumulative and not average of SGPA
- In first semester CGPA = SGPA, but second semester onwards it depends on total cumulative credits a student has earned.
- For Direct 2<sup>nd</sup> Year admitted student 3<sup>rd</sup> semester SGPA= CGPA, but fourth semester onwards it depends on total cumulative credits a student has earned.
- The subject credits play significant role in calculation, more the credits more is the weightage in SGPA calculation.
- The Resit Examination is for students failed in current term i.e. In ODD term Resit Examination; student can appear for subjects in which he has failed in current ODD term. Similarly in EVEN term Resit Examination; student can appear for subjects in which he has failed in current EVEN term.
- RESIT examination is just one immediate chance to clear the subjects.
- Student can not appear in EVEN term Resit Examination for the failed subjects of previous ODD term and vice versa.
- Student can appear as an ex-student in regular term examination for subjects in which he has failed (maximum 1+ 5 attempts including RESIT).
- The cutoffs of regular term examination (ODD /EVEN) are used in respective RESIT examination for allocation of grades
- Summer term is for students who cannot complete term for particular subject (detention etc.). Normally absolute grading system is used for summer term.