CREDIT BASED SYSTEM (CBS)
APPLICABLE TO

CAMPUSES, AUTONOMOUS & AFFILIATED COLLEGES/INSTITUTIONS OF I. K. GUJRAL PUNJAB TECHNICAL UNIVERSITY

DEPARTMENT OF ACADEMICS
I.K. GUJRAL PUNJAB TECHNICAL UNIVERSITY
JALANDHAR

CONTENTS

1. PREAMBLE

I. K. Gujral Punjab Technical University (IKGPTU) (Formly known as Punjab Technical University), Jalandhar was established in the Year 1997 under the Punjab Technical University Act, 1996 (Punjab Act No. 1 of 1997) to enhance technical education and development thereof in the State of Punjab and for matters connected therewith. The University is aware of the urgent need to move towards Choice-Based Credit System (CBCS) and Grading system as per guide lines of UGC. The university has already implemented Credit Based System from the Academic session- 2015-16. The University is committed to implement CBCS in future.

2. WHY CHOICE BASED CREDIT SYSTEM

The Choice Based Credit System (CBCS) enables a student to obtain a degree by accumulating required number of credits prescribed for that degree. The student also has choice in selecting courses out of those offered by various departments. The grade points earned for each course reflects the student's proficiency in that course. The CBCS enables the students to earn credits across departments and provides flexibility in duration to complete a Program of study. The CBCS facilitates transfer of credits earned in different Departments/Centres of other recognized / accredited universities or institutions of higher education in India and abroad.

3. APPLICABILITY OF CHOICE BASED CREDIT SYSTEM

The Choice Based Credit System (CBCS) shall apply to all Under Graduate/Post Graduate Courses of IKGPTU's Campuses, Autonomous Institutions and affiliated Colleges/Institutions. Under CBCS the requirement for awarding a degree is prescribed in terms of number of credits and students are given choices from the pool of elective courses.

4. DEFINITIONS OF KEY WORDS

4.1. **Hon' able Vice Chancellor (VC):** Means the Hon' able Vice Chancellor (VC) of the I. K. Gujral Punjab Technical University, Jalandhar.

4.2. **Dean (Academics):** Means the Dean (Academics) of the I. K. Gujral Punjab Technical University, Jalandhar.

4.3. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.

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4.4. **Credit Based System (CBS):** The CBS provides choice for students to select from the prescribed courses (core, elective and inter-disciplinary courses).

4.5. **Program/Discipline:** An educational program/discipline leading to award of a Degree/Diploma/Certificate.

4.6. **Course:** Usually referred to, as 'subject' is a component of a program/discipline. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

4.7. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (Lecture or Tutorial) or two hours of practical work/field work per week.

4.8. **Credit Point:** It is the product of grade point and number of credits for a course.

4.9. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree/diploma/certificate is prescribed in terms of number of credits to be completed by the students.

4.10. **Grade Point:** It is a numerical weight allotted to each letter grade on a 10-point scale.

4.11. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

4.12. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.

4.13. **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

4.14. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

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4.15. Grade Card or Certificate: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

4.16. End Semester Examination: The examination conducted by the University at the end of the semester.

4.17. Internal Evaluation: The Midterm Sessional Tests (MST) quizzes/ group discussion/ class discussion/ attendance/ seminars / projects/ case studies etc. comprise the internal evaluation.

4.18. Degree: An award conferred by university signifying that the student has satisfactorily completed a program/discipline of study.

5. COURSE STRUCTURE/ PATTERN

The Under Graduate/ Post Graduate degree courses will consist of three major components i.e., Core Courses, Elective Courses and Inter Departmental Courses.

5.1. Core courses: These are offered by the parent department and are totally related to the major/discipline course. The core courses also include subjects related to Basic Sciences and Humanity. The components like Practicals, Projects, Group Discussions, Viva, Field Visits etc. will be the part of the core course. The credits for Basic Sciences/Humanity and Core courses will be 10%-20% and 55%-75% of the total credits of a program/discipline respectively.

5.2. Elective courses: These are also offered by the parent department. These courses will provide choice and flexibility within the department. The student can choose his/her elective paper. Elective is related to the major course. The difference between core course and elective course is that the core course is a regular course as the part of the curriculum whereas in elective course, there is choice for the student. The credits for Elective courses will be 10%-15% of the total credits of a program/discipline.

5.3. Inter Disciplinary Elective courses: The department is at liberty to offer three to four Inter Disciplinary Elective courses and these courses are called as inter-departmental courses. These courses are offered by a department for the students belonging to other departments. The objective is to provide mobility and flexibility outside the parent department. These courses are introduced to make every course multi and inter-disciplinary in nature. These courses are to be chosen from a list of

courses offered by various departments. The credits for Inter Departmental Courses will be 5%-10% of the total credits of a program/discipline.

6. EVALUATION OF ACADEMIC PERFORMANCE OF STUDENTS

The academic performance of student in each course will be evaluated as per Table 1.

Table 1: Structure of grading academic performance

S. No.	Grade	Qualitative Meaning	Grade points
1	O	Outstanding	10
2	A^+	Excellent	9
3	A	Very good	8
4	B^+	Good	7
5	B	Above Average	6
6	C	Average	5
7	P	Marginal/Pass	4
8	F	Failed	0
9	Ab	Absent	0
10	I	Incomplete	-
11.	E	Detained	0
12	S/US	Satisfactory/Unsatisfactory	-

Description of Grades:

6.1. "O" Grade stands for outstanding achievement. The "P" grade stands for marginal/Pass performance. It is the minimum passing grade in any course.

6.2. "I" grade denotes incomplete performance. It may be awarded to a student if he/she does not appear in End Semester Examination due to some extraordinary circumstances.

6.3. "E" grade is awarded if student is detained i.e., attendance in theory class/laboratory is less than 75% and the student will have to repeat the course as and when offered.

6.4. "F" grade is given to the student who has appeared in the End Semester Examination but failed to get "minimum qualified marks".

6.5. "Ab" grade is awarded if the student is absent in the End Semester Examination without any valid reason.

Corresponding to earned letter grade for each course, the particular grade points are as given in Table 1. The Grade Point Average (GPA) is calculated by taking the number of grade points a student earned in a given period of time divided by the total number of credits undertaken for the studies. Each course is assigned with a weightage called credits. Table 2 shows the procedure to be followed to calculate number of credits for one hour of teaching per week for each course.

Table 2: Credits corresponding to one hour of Lecture/Tutorial/ Practical

S. No.	Teaching component	Credit(s)
1	Lecture	01 credit for 01 lecture hour per week
2	Tutorial/Studio*	01 credit for 01 tutorial/studio hour per week
3	Practical/Field Visit*	01 credit for 02 practical/Field visit hour per week. Three/four Laboratory hours per week shall be assigned two credits. Five/six Laboratory hours per week shall be assigned three credits. Seven/eight Laboratory hours per week shall be assigned four credits.
4	Seminar	01 credit for 01 practical/study hour per week
5	Project	01 credit for 01 hour per week or as defined in the syllabus
6	Dissertation	01 credit for 01 practical/study hour per week or as prescribed in the program/discipline.
7	Industrial Training	Equivalent to one semester though comprehensive evaluation mechanism as per defined norms.

Applicable for Architecture

7. EXAMINATION AND ASSESSMENT

The performance of student in each course shall be evaluated through continuous assessment consisting of examinations/tests/quizzes etc. as per the guide lines given in Table 3. An academic calendar indicating the schedule of continuous assessment will be notified by the University before the start of the academic session.

Table 3: Continuous Assessment Criterion

Examination (Theory)	Syllabus to be covered in the examination	Time allotted for the examination	Weightage (Marks)	Remarks
Midterm Sessional Test (MST) – I	Upto 33%	1.5 Hour	24%	Best two tests shall be considered and in any case no special test will be conducted for the students who remained absent in any of the MST. MST-I, II, III and quizzes etc constitute internal evaluation.
Midterm Sessional Test(MST) – II	33 % to 66 %	1.5 Hour		
Midterm Sessional Test (MST) – III	66% to 100%	1.5 Hour		
Quizzes/Group discussion / Class discussion/ attendance/ seminars / projects/ case studies assignments etc.	As per discretion of teacher	As per discretion of teacher	16%	
End Semester Examination	100% Syllabus	3 Hours	60%	Checking of answer sheets will be done at the University level. This component is called external evaluation.
Total			100%	Marks may be rounded off to nearest integer
Practical				
Daily evaluation of practical records/Assignment/Viva Voce/ Attendance etc.			60%	Internal evaluation
Final Practical Performance + Viva Voce	100% Syllabus	3 Hours	40%	External evaluation
Total			100%	Marks may be rounded off to nearest integer

There must be an overall Coordinator at the Institution/Department level to coordinate for the proper implementation of the same. Coordinator will ensure that syllabus covered before internal and external evaluation must be as per Table 3.

The marks computed out of 100 shall be used to find grade and grade points for each course/component. Finally grade points of all courses shall be used to compute SGPA and then CGPA.

7.1. All evaluations of different components of a course shall be done in marks for each student. The marks obtained in theory/practical courses or other teaching components shall be scaled to 100 (40 internal evaluation+60 external evaluation for Theory paper and 60 internal evaluation +40 external evaluation for Practical paper) up to next integer value. Finally the grades will be assigned to each student in each course as per following guidelines:

(a) Absolute grading will be used for class having less than 30 (<30) registered students. The criterion is outlined in Table 4.

Table 4: Absolute grading criterion

Sr. No.	Marks	Grade	Grade points
1	≥ 90 & ≤ 100	O	10
2	≥ 80 & <90	A+	9
3	≥ 70 & <80	A	8
4	≥ 60 & <70	B+	7
5	≥ 50 & <60	B	6
6	≥ 45 & <50	C	5
7	≥ 40 & <45	P	4
8	<40	F	0

Note:-The grade boundaries as indicated above may be marginally adjusted

(b) Relative grading will be used for a class having 30 or more (≥ 30) registered students as statistical distributions are suitable for samples having 30 or more number of elements. The criterion is outlined in Table 5. Workout example for different values of σ and μ and corresponding grades has been given in Annexure-I.

Table 5: Relative grading criterion

Sr. No.	Marks	Grade	Grade points
1	$\geq \mu+1.80\sigma$	O	10
2	$\geq \mu+1.35\sigma$ and $<\mu+1.80\sigma$	A+	9
3	$\geq \mu+0.85\sigma$ and $<\mu+1.35\sigma$	A	8
4	$\geq \mu+0.35\sigma$ and $<\mu+0.85\sigma$	B+	7
5	$\geq \mu$ and $<\mu+0.35\sigma$	B	6
6	$\geq \mu-0.35\sigma$ and $<\mu$	C	5
7	$\geq 40\%$ Marks and $<\mu-0.35\sigma$	P	4
8	$<40\%$ (Marks)	F	0

Note:-
1. μ is mean and σ is standard deviation of marks obtained in the class (Annexure II)
2. The grade boundaries as indicated above may be marginally adjusted if there is any violation of upper or lower limits
3. Lower and higher outliers can be separated before awarding the grades

7.2. "F", "Ab", "I", and "P" grades:

    a) It is compulsory to secure at least 20% marks in each course to be considered for grading. If a student secures less than 20% marks he/she will be awarded "F" grade in that course.

b) It is also compulsory to appear in the End Semester Examination. If student does not appear in the End Semester Examination without the permission of Hon'able Vice Chancellor/ Dean (Academics), he/she will be awarded "Ab" grade in that course.

c) "I" grade (Incomplete) would be awarded to the student who has not appeared in the End Semester Examination due to a justified reasons in extraordinary circumstances. "I" grade shall be awarded to the student only after approval from Hon'able Vice Chancellor/ Dean (Academics). In case a student get "I" grade, he/she has to appear only in End Semester Examination. His/her internal assessment marks will be freezed and he/she will be given grade as per mean and standard deviation of his/her original class without modification in grades of other students. In case, absolute grading is applicable then fixed thresholds will be used as per Table 4.

d) "P" grade shall not be awarded for percentage of marks less than 40%. Still further, no student having 40% or more marks will be awarded failing grade "F" i.e. any student having 40% or more marks will get atleast "P" grade.

7.3. A student can apply for improvement in grade of any course in which he/she has got "P" grade. He/she will be allowed to appear only in End Semester Examination and will be evaluated as per performance of his original class. In any case grade of other students of his/her original class shall not change. The student can improve to the most in two subjects and maximum grade can be up to "A" grade if CGPA is more than 6.0 at the end of degree. However, student can improve more than two subjects and maximum grade can be up to "A" grade to attain the 6.0 CGPA (or 60% marks) if CGPA is less than 6.0 at the end of the degree.

7.4. A student who secures "F" or "Ab" grade will have an option to appear in End Semester Examination i.e. external component. His/her internal assessment marks will be freezed and he/she will be given grade as per mean and standard deviation of his/her original class without modification in grades of other students. In case, absolute grading is applicable then fixed thresholds will be used as per Table 4.

Moreover he/she will also have the option to repeat the course by re-registering in that course, whenever it is offered next time.

7.5. Every class instructor teaching a class will take attendance till the last instructional day in the semester. The statement of the attendance with marks in MST should be displayed on the notice board and submitted to the department within one week of conduct of the MST. The next day after the last instructional day, a statement of shortage of attendance i.e. detainee student list may be submitted to the department.

7.6. A student shall have to attend 75% of Lectures (including tutorials) of a course(s) otherwise he/she will be detained in that course(s).

Dean (Academics) of the University in case of University/constituent College and Principal/Director in case of affiliated institutions may condone attendance shortage upto 10% in the total for the reasons to be recorded in writing (owning to serious illness, calamity, participation in any game/sports/competitions with the approval of the Institution etc.). However, under no circumstances, a student who has an aggregate attendance of less than 65%, in a semester shall be allowed to appear in the End Semester Examination.

7.7. A student is detained in a course, whatever may be the reason for the shortfall in attendance, will not be permitted to sit for the End Semester Examination in the course. He/she will be awarded E grade for the course. In order to earn credits for this course, the student will have to re-register for the course, whenever it is offered next time. The department will not make any adjustment in time table for such students. In case a student is detained in the elective course, atleast one time in one year such course has to be offered to such student by making appropriate arrangements for conducting the classes.

7.8. There are no grade points for "F", "Ab", "I" and "E" grades, so they are not considered for SGPA and CGPA. However for calculating total number of credits, all the courses allotted in the semester(s) are considered for calculation of SGPA and CGPA.

7.9. SGPA and CGPA shall be calculated up to two decimal place, after rounding off the third decimal to the nearest second place integer decimal i.e. 0.005 is to be increased to 0.01. CGPA should be computed after every semester.

7.10. To obtain "O", student has to appear in all the teaching/evaluation component of the course. However, in the view of the merit of the student, the teacher may consider to award "O" grade for a student who has not gone through all the component of the course.

7.11. An honors degree will be conferred at CGPA of 8.0 or above provided student should not have obtained even a single "F", "Ab" or "E" in any course during whole duration of the course.

8. COMPUTATION OF SGPA and CGPA

The performance of a student will be evaluated in terms of two indices, viz., semester grade point average (SGPA) and cumulative grade point average (CGPA) for the completed semesters at any point in time. SGPA and CGPA shall be calculated up to two decimal places, thus 0.005 to be rounded off to 0.01.
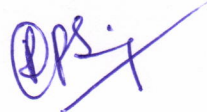
8.1. Semester Grade Point Average (SGPA): The performance of a student in a particular semester will be measured by semester grade point average (SGPA), which is a weighted average of the grades secured in all the courses/teaching components taken in a semester and scaled to a maximum 10.

Let the grade points associated with the letter grades awarded to a student in assigned courses are g_1, g_2, g_3, g_4, g_5 and the corresponding credits are w_1, w_2, w_3, w_4, w_5, the SGPA will be calculated as

$$\text{SGPA} = \frac{w_1 g_1 + w_2 g_2 + w_3 g_3 + w_4 g_4 + w_5 g_5}{w_1 + w_2 + w_3 + w_4 + w_5}$$

In general, it can be written as

$$\text{SGPA} = \frac{\sum_{i=1}^{m} w_i g_i}{\sum_{i=1}^{m} w_i}$$

Where,

w_i is credit of ith course, g_i is grade point of ith course and m is number of courses in one semester.

Here, $g_i = p_s g_{is} + p_{ese} g_{iese}$

p_s is the prescribed percentage weightage to Internal Evaluation

p_{ese} is the prescribed percentage weightage to End Semester Evaluation

g_{is} is grade point obtained in Internal Evaluation

g_{ese} is grade point obtained in End Semester Evaluation

For instance, suppose a student is registered for one 5-credit course, four 4-credit courses and one 3-credit course during a semester i.e., a total 24 (5+4×4+3)-credits. If he/she secures O, A+, A, B+, B & P grades respectively in these courses in internal evaluation having 40% weightage and A, B, C, P, B & C grades respectively in end semester examination having 60% weightage, his/her SGPA can be calculated as follows:

SGPA=

$$\frac{(0.4×10+0.6×8)×5+(0.4×9+0.6×6)×4+(0.4×8+0.6×5)×4+(0.4×7+0.6×4)×4+(0.4×6+0.6×6)×4+(0.4×4+0.6×5)×3}{24}$$

$$= \frac{44+28.8+24.8+20.8+24+13.8}{24} = \frac{156.2}{24} = 6.51$$

SGPA will be calculated up to two decimal place only.

8.2. Cumulative Grade Point Average (CGPA): The cumulative grade point average (CGPA) indicates the overall academic performance of a student in all the courses registered upto and including the latest completed semester. It is computed in the same manner as the SGPA, considering all the courses (say n), and is given by

$$CGPA = \frac{\sum_{i=1}^{n} w_i g_i}{\sum_{i=1}^{n} w_i}$$

The grades of any and all repeated courses shall be included in the official transcripts. However once a student repeats and passes a course in which he/she had failed earlier, the earlier fail grade do not enter into the computation of CGPA.

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9. CONVERSION OF CGPA TO PERCENTAGE

The conversion of SGPA or CGPA to Percent score will be carried out by multiplication of respective SGPA or CGPA by a factor of 9.5. The equivalence between important percentages in absolute marks system and CGPA is given in Table 6.

Table 6: Equivalence between Percentages in absolute marks system and CGPA

CGPA (X)	4	5	6	7	8	9	10
Percentage (Y)	38	47.5	57	66.5	76	85.5	9.5

Percentage (Y) = CGPA (X) × 9.5

CGPA of 6 is equivalent to 57 percent.

10. EVALUATION SYSTEM FOR CONSTITUENT AND AFFILIATED COLLEGES/INSTITUTIONS OF IKGPTU
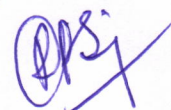
10.1. Affiliated Institutions

For affiliated Institutions, the End Semester Examination (Theory) will be held at the University level, as per the pattern followed by the University time to time. The grading will be prepared by the University based on the marks obtained by the students in Internal and External Evaluation, both for Practical as well as Theory courses using *Absolute Criteria*. The Students are allowed for re-evaluation for End semester Examination.

10.2. Academic Autonomous Institutions

Relative grading for Internal Evaluation as well as End Semester Examination will be followed by the Institutions having the Academic Autonomy. The grading will be done at Institute level. The grading will be done after showing the Answer sheets to the students and thereafter no re-evaluation will be done for End Semester Examination for these Autonomous Institutions.

Jurisdiction: All disputes will be settled under the jurisdiction of Jalandhar Court.

Work-out example for different values of 'μ' & 'σ' with corresponding Grades

μ	σ		≥ μ+1.80σ	≥ μ+1.35σ and <μ+1.80σ	≥ μ+0.85σ and < μ+1.35σ	≥ μ+0.35σ and < μ+0.85σ	≥ μ and < μ+0.35σ	≥ μ-0.35σ and < μ	≥ 40% Marks and < μ-0.35σ	< 40% (Marks)
50	10		≥68	≥ 63.5 and <68	≥58.5 and <63.5	≥53.5 and <58.5	50≥ and <53.5	≥46.5 and <50	≥40 and <46.5	< 40
50	20		≥86	≥77 and <86	≥67 and <77	≥ 57 and <67	50≥ and <57	≥43 and <50	≥40 and <43	< 40
55	10		≥73	≥68.5 and <73	≥63.5 and <68.5	≥ 58.5 and <63.5	55≥ and <58.5	≥51.5 and <55	≥40 and <51.5	< 40
55	20		≥91	≥82 and <91	≥72 and <82	≥ 62 and <72	55≥ and <62	≥48 and <55	≥40 and <48	< 40
60	10		≥78	≥73.5 and <78	≥68.5 and <73.5	≥ 63.5 and <68.5	60≥ and <63.5	≥56.5 and <60	≥40 and <56.5	< 40
60	20		≥96	≥87 and <96	≥77 and <87	≥ 67 and <77	60≥ and <67	≥53 and <60	≥40 and <53	< 40
Grade			O	A+	A	B+	B	C	P	F

Work-out example for Calculating 'μ' & 'σ'

Roll	Marks obtained(X_1)	$(X_1-\mu)$	$(X_1-\mu)^2$
IKGPTU-1	25	0.82	0.68
IKGPTU-2	0	-24.18	584.46
IKGPTU-3	24	-0.18	0.03
IKGPTU-4	33	8.82	77.87
IKGPTU-5	25	0.82	0.68
IKGPTU-6	24	-0.18	0.03
IKGPTU-7	0	-24.18	584.46
IKGPTU-8	24	-0.18	0.03
IKGPTU-9	26	1.82	3.33
IKGPTU-10	24	-0.18	0.03
IKGPTU-11	44	19.82	393.00
IKGPTU-12	29	4.82	23.27
IKGPTU-13	33	8.82	77.87
IKGPTU-14	26	1.82	3.33
IKGPTU-15	24	-0.18	0.03
IKGPTU-16	25	0.82	0.68
IKGPTU-17	36	11.82	139.81
IKGPTU-18	30	5.82	33.92
IKGPTU-19	32	7.82	61.22
IKGPTU-20	24	-0.18	0.03
IKGPTU-21	24	-0.18	0.03
IKGPTU-22	25	0.82	0.68
IKGPTU-23	39	14.82	219.76
IKGPTU-24	30	5.82	33.92
IKGPTU-25	27	2.82	7.98
IKGPTU-26	26	1.82	3.33
IKGPTU-27	24	-0.18	0.03
IKGPTU-28	26	1.82	3.33
IKGPTU-29	24	-0.18	0.03
IKGPTU-30	24	-0.18	0.03
IKGPTU-31	27	2.82	7.98
IKGPTU-32	40	15.82	250.41
IKGPTU-33	12	-12.18	148.25
IKGPTU-34	7	-17.18	295.00

IKGPTU-35	28	3.82	14.63
IKGPTU-36	26	1.82	3.33
IKGPTU-37	24	-0.18	0.03
IKGPTU-38	24	-0.18	0.03
IKGPTU-39	24	-0.18	0.03
IKGPTU-40	24	-0.18	0.03
IKGPTU-41	24	-0.18	0.03
IKGPTU-42	24	-0.18	0.03
IKGPTU-43	26	1.82	3.33
IKGPTU-44	24	-0.18	0.03
IKGPTU-45	25	0.82	0.68
IKGPTU-46	0	-24.18	584.46
IKGPTU-47	24	-0.18	0.03
IKGPTU-48	11	-13.18	173.60
IKGPTU-49	24	-0.18	0.03
IKGPTU-50	24	-0.18	0.03
IKGPTU-51	26	1.82	3.33
IKGPTU-52	7	-17.18	295.00
IKGPTU-53	32	7.82	61.22
IKGPTU-54	27	2.82	7.98
IKGPTU-55	37	12.82	164.46
IKGPTU-56	24	-0.18	0.03
IKGPTU-57	24	-0.18	0.03
IKGPTU-58	27	2.82	7.98
IKGPTU-59	0	-24.18	584.46
IKGPTU-60	24	-0.18	0.03
IKGPTU-61	24	-0.18	0.03
IKGPTU-62	27	2.82	7.98
IKGPTU-63	25	0.82	0.68
IKGPTU-64	28	3.82	14.63
IKGPTU-65	0	-24.18	584.46
IKGPTU-66	24	-0.18	0.03
IKGPTU-67	25	0.82	0.68
IKGPTU-68	26	1.82	3.33
IKGPTU-69	25	0.82	0.68
IKGPTU-70	30	5.82	33.92
IKGPTU-71	24	-0.18	0.03
IKGPTU-72	26	1.82	3.33

IKGPTU-73	34	9.82	96.52
IKGPTU-74	24	-0.18	0.03
TOTAL	**1789**		**5606.72**
No. of Students (N)		74	
Mean (μ) =Total Marks obtained /No. of Students		24.18	
STANDARD DEVIATION (σ) $\sqrt{\dfrac{1}{N-1}\displaystyle\sum_{i=1}^{n}(X_i-\mu)^2}$		$\sqrt{5606.72}/73$ =**8.76**	