ORDINANCE: Choice Based Credit System Applicable To All Post Graduate Two Year and Three Year Programmes (Excluding M. Pharma)

This ordinance shall apply to all two year and three year postgraduate programmes being run in the University Teaching Departments and the affiliated colleges of the University.

Notwithstanding anything contained in any rule for 2-Year or 3-Year PG Programme, this ordinance shall apply to every student/course of 2-year or 3-year PG programme being run by the University or its affiliated colleges.

Definitions of Key Words

- (i) Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).
- (ii) Programme: An educational programme leading to award of a Degree, diploma or certificate.
- (iii)Course: Usually referred to as 'paper' is a component of a programme. 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.
- (iv)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.
- (v) Credit Based Semester System (CBSS): Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
- (vi)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/field/dissertation work per week.
- (vii) 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.
- (viii) Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.
 - (ix)Credit Point: It is the product of grade point and number of credits for a course.
 - (x) 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.
 - (xi)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.
- (xii) Transcript or 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.

Semester System and Choice Based Credit System

The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning. It offers wide ranging choice for students to opt for courses based on their aptitude and their career goals.

Types of Courses

Courses in a programme may be of three kinds: Core, Elective and Foundation.

(A) Core Courses:

A core course is a compulsory paper to be studied by a candidate as a core requirement to complete the requirements of a degree. The core component is based on papers that are unique to the programme and hence imperative for study to earn a degree in a given discipline/programme.

(B) Elective Course:

Elective course is a course which can be chosen from a pool of papers. It may be:

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain
- Nurturing student's proficiency/skill.

The elective papers are of two types:

a) **Open Elective**

An elective may be "Generic elective" focusing on those courses which add generic proficiency to the students. Discipline Centric may be chosen from an unrelated discipline. The latter may be called as an open elective.

Discipline Centric Elective Paper

A paper which a candidate can choose from a pool of papers from the main discipline or from a sister/related discipline which supports the main discipline.

Open Elective Paper

An elective paper chosen generally from an unrelated discipline with an intention to seek exposure is called an Open Elective. Each department may design syllabus of at least one paper which can be chosen as an open elective by the students of the other departments. These courses shall constitute a pool of open elective courses. The candidate may attempt this course either in Hindi or English irrespective of the medium of instructions for the course.

Discipline Centric elective offered by a department may serve as open elective for other department of the concerned faculty, if no clash in the time table is there.

b) Foundation Elective

Foundation Elective Courses are value-based courses which may enhance the proficiency / skill. These electives could be computer awareness, information processing, office automation programming, communication skills, Spoken English, Knowledge of an additional Foreign Language, Personality Development, soft skills, Business and Management courses, entrepreneurship development etc.

The University shall provide to the students a pool of Foundation elective courses which may be offered by the following departments of the University:

- i) Department of English
- ii) Department of Psychology
- iii) Department of Computer Science
- iv) Department of Commerce
- v) Institute of Management Studies and Research
- vi) Department of Law
- vii) Any other department willing to offer a Foundation/Supportive Elective

Note:

- i) A student will have the liberty as to whether he/she wants to study the open elective paper (s) or not. If a student is not willing to study any open elective course, he/she will be required to earn the credit points by studying a course in place of open elective course prepared by the department running the programme.
- ii) A paper of one department may also serve as open elective paper for the other department.
- iii) The students of an affiliated college of the University may choose and study open elective paper out of the papers being taught in the nearby colleges.

(C) Project/Field Work/Dissertation/Group Seminars

It is a special paper where a candidate carries out the application of knowledge in solving/studying /exploring a real life /difficult problem in a creative way. Depending upon the scope and time framework available, the project work/Field work/Dissertation/Group Seminar may be of 2, 4, 8 or 20 credits. The project work/Field work/Dissertation/Group Seminars shall be discipline centric, and the candidate has to study it on his own with an advisory support by the concerned teacher. The distribution of this work should be as follows:

Unit I: Identification of problem area and literature survey.

Unit II: Study of specific literature in detail pertaining to the statement of the problem.

Unit III: Developing a solution, methodology or proposing a hypothesis to solve the problem.

Unit IV: Data Collection & Analysis/Experimental analysis, results, discussion, conclusion and recommendations.

Note:

(i) Each department shall prepare a students' handbook which shall contain complete list of courses (papers) including the core and open choice courses.

- (ii) Each department shall conduct an Induction Programme to counsel the students for choosing elective papers.
- (iii) The student must register for the courses he/she intends to undergo in a semester by applying in the prescribed proforma duly signed by the candidate and concerned Head/Director/Principal of the Department/Institute/Centre/College, within the stipulated time notified by the University. Withdrawal from an Elective/Optional course is permitted up to two weeks from the date of commencement of classes, which will be substituted by another Elective/ Optional course for valid reasons. Withdrawal from a course shall not be permitted for those who take late admission/registration.
- (iv) The information on list of all the courses offered in every department specifying the credits, the prerequisites, a brief description of syllabus or list of topics, the department who is offering the course and the time slot may be made available on the University website.
- (v) The registration for the open elective course shall be on first come first served basis, provided the student fulfils prerequisites for that course, if any. The number of students to be registered shall be based on the class room and laboratory capacity. Every effort shall be made by the Department/Centre to accommodate as many students as possible.
 (vi) No paper shall be offered unless a minimum of 5 students are registered.
- (vi) No paper shall be offered unless a minimum of 5 students are registered.

Structure of Courses

It is proposed that courses/papers wherever possible should be structured such as to include a section to be taught through class room lectures (L), a tutorial component for participatory discussion / problem solving / brief seminar on a topic / assignments / self study or through other appropriate method that may potentiate the extent of assimilation by the student (T), followed by practical/practice session consists of hands on experience / laboratory experiments / field work / case studies etc (P).

L: 1 hour / week amounting to 1 credit of learning / semester by a student in a paper.

- T: 1 hour / week amounting to 1 credit of learning per semester by a student in a paper.
- P: 2 hours / week amounting to 1 credit of learning per semester by a student in the paper.

Depending upon the content, volume of content, and nature of the course to be taught generally the papers can be of 4 or 5 credits and occasionally there may be papers of 2 or 3 credits and rarely of 6 credits. The Concerned BOS will choose the convenient credit pattern for every course based on the requirement.

The total credits earned by a student at the end of semester upon successfully completing the course is L+T+P. The credit pattern of the course is indicated as L:T:P format. For a 4 credit course format could be:

4:0:0	3:1:0	3:0:1	2:0:2	2:1:1	1:0:3	0:0:4
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Size of Groups for

Tutorial:	20 Students
Practical:	15 Students

For dissertation/project/field work, 0.05 hrs per credit per week per student will be counted for the purpose of work load of a teacher. No teacher will be allotted more than 8 students for dissertation/project/field work and less than 4 hours for class room lectures. If there is Co-supervisor/Co-mentor for dissertation/project/field work, then half of the work load i.e. 0.025 hrs per credit per week per student will be counted for the purpose of work load of a teacher.

Semester	Credits					
	Core	Discipline Centric Elective	Open Elective	Foundation elective	Project/ Field work/ Dissertation	Total
1 st	20-28	0-4	0-6	0-2	-	20-36
2 nd	12-24	0-8	0-6	2-4	-	21-36
3 rd	0-16	0-20	0-6	0-2	X (=0 or 2 or 4 or 8 or 20)	21-36
4 th	0-16	0-20	-	-	Y(=0 or 4 or 8 or 20)	20-36
Minimum	54 or	20-(X+Y)	6	2	X+Y	82
Credits	74-(X+Y)	or 0				
required	according to	according				
	whether X+Y \leq	to whether				
	or > 20	$X+Y \leq or$				
	(Please see	>16				
	Annexure II)	(Please see				
		Annexure				
		II)				

Credit Score required to be Earned by a Student of a Two Years PG programme

Semester		Credits				
	Core	Discipline Centric Elective	Open Elective	Foundation Elective	Project	Total
1 st	24-28	0-4	-	-	-	24-28
2 nd	24-28	0-4	-	2-4	-	26-32
3 rd	24-28	0-4	-	0-2	-	26-32
4 th	16-20	8-12	0-6	-	-	27-34
5 th	16-20	8	0-6		4	31-38
6 th	-	-	-	-	20	20
Minimum Credits required	104	16	6	2	24	152

EXAMINATION AND ASSESSMENT

- 1. The examination for the odd semesters shall ordinarily be held in the month of December/January and for the even semesters in the month of May/June on such dates as may be notified by the Controller of Examinations.
- 2. For a two year PG programme: A supplementary examination for 1st & 2nd semesters shall be held along with their regular 1st & 2nd semester examinations. However, the supplementary examination for 3rd and 4th semesters shall be held after every six months.
- 3. For a three year PG programme: A supplementary examination for 1st, 2nd, 3rd & 4th semesters shall be held along with their regular 1st, 2nd, 3rd & 4th semester examinations.

However, the supplementary examination for 5^{th} and 6^{th} semesters shall be held after every six months.

4. A student who for whatever reasons is not able to complete the programme within the normal period or the minimum duration prescribed for the programme, may be allowed three years period beyond the normal period to clear the backlog to be qualified for the degree. The general formula, therefore, should be as follows:

Time span=N+3 years for the completion of programme, where N stands for the normal or minimum duration prescribed for the completion of programme.

No further extension will be allowed, in any case.

5. Theory paper will have marks in the ratio of 80 per cent (67 per cent for M.Tech.) external and 20 per cent (33 per cent for M.Tech.) internal, irrespective of the credits assigned to it.

The grade points awarded to a student in any particular course/paper will be based on the performance of the student in the internal assessment (sessional tests, attendance and assignments/presentations) and the external assessment (end semester examination) taken together.

The distribution of the weightage of marks in the internal assessment other than M.Tech. Programme will be as under:

Sessional Test	10 marks
Assignment/presentation	5 marks
Attendance*	5 marks

* Distribution of the marks for attendance is as under:

Percentage of the Attendance	Marks
65 per cent to 70 per cent	2
Above 70 percent and up to 75 per cent	3
Above 75 percent and up to 80 per cent	4
Above 80 percent	5

For M.Tech. Programme:-

Sessional work in each course shall be evaluated by the teacher concerned and awards will be forwarded to the Controller of Examination by the Head of UTD or Director/Principal of the College before the commencement of the each semester examination. The awards shall be based on the objective assessments of performance of student in the class, sessional tests, assignments, etc. as given from time to time in a Theory/Laboratory/ Seminar/Dissertation course. The evaluation shall be based on the weightage of different components of the sessional marks as given under:-

Theory Courses	Attendance	20%
	Assigment/Project/Term Paper	20%
	Sessional Tests	60%
	(Two test having equal weightage)	
Lab. Course	Attendance	20%
	Lab. Work/Project	60%
	Viva Voce	20%
Seminar through	Attendance	20%
a Committee	Presentation	60%
	Report	20%

Dissertaiton	Attendance	20%
$(3^{\rm rd} {\rm sem.})$	1 st Presenation	20%
Through a	2 nd Presenation	40%
committee	Report	20%
Dissertation (4 th sem)	Assessment by supervisor	20%
Through a Committee	1 st Presentation	20%
-	(at the middle of Sem.)	
	2 nd /Pre submission Presentation	40%
	Report	20%

- 6. The Head of the Department/Principal shall forward the internal assessment marks awarded by the concerned teacher on the basis of class test, written assignment and its Presentation/Seminar and attendance in the classes etc. to the Controller of Examinations as per the following schedule:
 - (i) The Internal Assessment/Sessional marks should be supplied by the Heads of the Departments/Principals of the Colleges/Heads of the Institutions invariably within 20 days after the commencement of the examination.
 - (ii) Thereafter, a late fee @ Rs.25/- per candidate per subject shall be charged from the Department/College/Institute concerned.
 - (iii) No Internal Assessment/Sessional marks shall be entertained, if the same are received in the University after 30 days of the declaration of results. However, Vice-Chancellor may condone the delay with late fee after taking into consideration the merit of each case.
- 7. The examination schedule containing the dates of receipt of examination forms with and without late fee, shall be notified by the controller of Examinations from time to time.
- 8. The examination fee to be paid by the candidate for each semester shall be prescribed by the University from time to time.
- 9. A person who has passed the Bachelor's Degree examination from this University or any other examination recognized by M.D. University, Rohtak as equivalent thereto shall be eligible for admission. The detailed eligibility conditions e.g. percentage of marks in the qualifying examinations, entrance test, etc. shall be notified in the Admission Brochure/Handbook of Information duly approved.

Candidates placed under compartment in the qualifying examination shall not be eligible for admission.

- 10. Every candidate shall be examined in the subject(s) as laid down in the syllabus and scheme of examination prescribed by the Academic Council from time to time. The fail/re-appear candidates will also appear in the exam as per syllabus applicable to regular students of that semester.
- 11. The Head of the Department/Principal will preserve the records on the basis of which the internal assessment awards have been prepared for inspection, if needed by the University up to three months from the date of declaration of the semester examination results.
- 12. The candidate will be allowed to appear in the examination if he/she meet the following requirements:-
 - (a) Bears a good character

- (b) Has been on the rolls of the Department/College/Institution during the semester.
- (c) Has attended not less than 65% of lectures delivered in theory as well as practicals. Relaxation in shortage of lectures up to 20% will be allowed by the Head of the Department/Principal of the College/institute on the following grounds:
 - (i) Self-illness;
 - (ii) Illness/death of parents, brother, sister or any other close family member;
 - (iii) Any other reason beyond the control of the student to the satisfaction of the Head of the Institution/Department.
- 13. The medium of instructions in the examination shall be Hindi/English in M.A. & M.Com. courses and English in all other courses.
- 14. The minimum percentage of marks to pass the examination in each semester shall be:
 - (i) 40% in each theory paper
 - (ii) 40% in each practical examination or viva-voce/Project/Training Report/Dissertation wherever prescribed.
 - (iii) 40% in the aggregate of each theory paper and internal assessment (and practical where practical is a component of theory paper).
- 15. After passing each semester examination, a candidate will be allowed to appear for improvement of result in one or more theory papers only once within the period prescribed in Clause-4. Only improved marks (higher score) will be taken into account. The candidate will have to appear according to the current syllabus.
- 16. The grace marks will be allowed as per University rules.
- 17. The candidate who has passed the theory papers and practical/lab course of semester I, II & III examinations and has worked for dissertation in semester IV shall submit the dissertation not later than 30th June of the year concerned. At the time of submission of dissertation, a candidate shall produce a certificate from the supervisor that he has worked for dissertation for at least one semester.

In case of late submission i.e. after 30th June, the HOD/Director/Controller of Examinations/Vice-Chancellor shall have the power to grant extension of date of submission or condone the delay in receipt of a thesis/dissertation/project report, for an examination, other than Ph.D. as under:-

Duration	Powers vested in	Late fee as prescribed from
		time to time (Rupees)
Up to one month	HOD/Director	Rs.500/-
Beyond one month and up	COE	Rs.1000/-
to two months		
Beyond two months and up	Vice-Chancellor	Rs.1500/-
to three months		

Late fee as prescribed in each case will be chargeable.

Provided that if a candidate fails to submit the dissertation etc. even during the extended period of three months i.e. 30th September, he/she will be considered to have absented in the dissertation /paper and his/her result will be declared accordingly.

Publication of Dissertation

The request of the students interested for publication of dissertation in various PG courses shall be considered whether the dissertation is suitable/fit for publication or not, by a committee consisting of Dean of the Faculty (Chairman), Head of the Department and

Supervisor, where the Dean of the Faculty and Head of the Department are same, the Vice-Chancellor may nominate some other teacher from the concerned faculty. The recommendations of the committee shall be referred to the Vice-Chancellor for consideration and approval.

No financial aid shall be given by the University for the Publication of the dissertation. The examiner evaluating the Dissertation shall while awarding marks be also required to indicate whether the Dissertation is fit for publication. The Committee while considering such request shall also keep in view the recommendations made by the examiner.

18. The grading system with the following letter grades is to be implemented in awarding the grades and CGPA under the credit based semester system:

Interval of Percentage of	Grade	Grade Points
Marks		
> or = 85 but < or = 100	O (Outstanding)	10
> or = 75 but <85	A+(Excellent)	9
> or = 60 but <75	A (Very Good)	8
> or = 55 but <60	B+ (Good)	7
> or = 50 but <55	B (Above Average)	6
> or = 40 but <50	C (Average)	5
40	P (Pass)	4
Less than 40	F (Fail)	0
	Ab (Absent)	0

Table 1: Intervals of Marks, Grades and Grade Points

i. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

- *ii.* The candidate who passes all the semester examination in the 1st attempt obtaining CGPA at least '8' shall be declared to have passed in the 1st division mentioned in the degree.
- *iii.* For non-credit courses 'Satisfactory' or "Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.
- *iv.* A candidate who fails to pass or having been eligible, fails to appear in any semester examination will be allowed to clear the re-appear paper (s) and also for improvement of result after passing a semester examination within a provided in clause-4. While re-appearing to pass a semester examination, the candidate will be exempted from re-appearing in the papers/practicals in which he/she has secured 40% pass marks.
- *v*. The internal assessment awards as well as viva-voce awards of a candidate who fails in any semester examination shall be carried forwards to the next examination.
- *vi.* Soon after the termination of the examination, the Controller of Examinations shall declare the result as early as possible.

Fairness in Assessment:

- i. In case of at least 50% of core courses offered in different programmes across the disciplines, the paper setting of the theoretical component towards the end of the semester should be undertaken by external examiners from outside the university to be appointed by the Controller of Examinations out of the panel provided by the Board of Studies of the Concerned Department. Paper setter should have at least 3 years of teaching experience.
- ii. In case of the assessment of practical component of such core courses, the team of examiners should be constituted on 50 50 % basis. i.e. half of the examiners in the

team should be invited from outside the university. The panel of examiners will be provided by the Board of Studies of the Concerned Department

iii. In case of the assessment of project reports/theses/dissertations etc. the work should be undertaken by internal as well as external examiners out of the panel provided by the Board of Studies of the Concerned Department.

Computation of SGPA and CGPA

The computation of the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) will be done as follows:

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

SGPA (Si) =
$$\sum$$
(Ci x Gi) / \sum Ci

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \sum (Ci \times Si) / \sum Ci$$

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

- iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
- iv. Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CGPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters may be issued.

Illustration of Computation of SGPA and CGPA and Format for Transcripts

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	3	А	8	3 x 8 =24
Course 2	4	B+	7	4 x 7 =28
Course 3	3	В	6	3 x 6 =18
Course 4	3	0	10	3 x 10=30
Course 5	3	C	5	3 x 5 =15
Course 6	4	В	6	4 x 6 = 24
	20			139

Thus, SGPA =139/20 =6.95

Similarly, suppose the **SGPA** for 2^{nd} , 3^{rd} and 4^{th} semesters are 7.85, 5.6 and 6.0 with credits 22, 24 and 22, respectively. Then for a two-year PG programme, the **CGPA** will be computed as follows:

 $\mathbf{CGPA} = (20 \text{ x } 6.95 + 22 \text{ x } 7.85 + 24 \text{ x } 5.6 + 22 \text{ x } 6.0)/88 = 6.57$

Note:

i. The list of successful candidates after the final semester examination shall be arranged as under in three divisions on the basis of the CGPA and the division obtained by the candidate will be stated in his/her degree:

(<i>a</i>)	Those who gets CGPA equal or more than 8	First division
(<i>b</i>)	Those who gets CGPA equal or more than 6 but less than 8	Second division
(<i>c</i>)	Those who gets CGPA equal or more than 4 but less than 6	Third division

If a candidate secures CGPA equal or above 9 in a programme in first attempt, he/she will be awarded 1st class with Distinction.

ii. A student of a class who gets the highest CGPA will be the topper of the class. However, if there is a tie in the highest CGPA, the topper will be decided using the following formula

Overall Weighted Average of Percentage of Marks(OWAPM) = $\sum (Cij \times Mij) / \sum Cij$

where Mij is the percentage of marks in the jth course of ith Semester and Cij is the number of credits for the jth course of ith Semester. The student having highest OWAPM will be the topper of the class.

University CBCS Board

There shall be a University CBCS Board comprising the following:

- a) Dean Academic Affairs-Chairperson
- b) Members
 - *i)* Dean of each faculty of the University-Member
 - *ii)* Director, IQAC-Member
 - *iii)* Registrar-Member
 - *iv)* Director, Computer Centre- Member
 - *v) Controller of Examinations*
- c) Deputy/Assistant Registrar/Incharge (Academic)-Member Secretary

The CBCS Board will

- i) recommend to the Academic Council the nomenclature and course contents for the different open elective courses;
- ii) prepare the time table for the elective courses;
- iii) suggest to the Academic Council for the advancement in the standards of teaching and examinations so far as the elective courses are concerned;
- iv) deal with the matter related to computation of SGPA, CGPA and the results.

Annexure 1

Application Form for Registration for Open Courses under CBCS

Semester-

(To be submitted in triplicate for each Open Course applied for)								
Copy 1: to be submitted to Head, Parent Department								
Copy 2: to Department where student is applying for Open Course								
1. Name of Student								
2. Name of Department /Centre:								
3. Roll Number:								
4. Registration Number:								
5. Name of Open Course applied for								
6. Department offering Open Course								
Signature of Student								
Signature of Head of the Department with seal								
Accepted Not Accepted								

Signature of Head of Department / Centre servicing the Open Course_____

X	Y	X+Y	Minimum Credit Required					
(Project credits in 3 rd Sem)	(Project credits in 4 th Sem)		Core	Disci pline Centr ic Electi ve	Open Elective	Foundation Elective	Project/ Field/ Dissertation work	Total
0	0	0	54	20	6	2	-	82
0	2	2	54	18	6	2	2	82
0	4	4	54	16	6	2	4	82
0	8	8	54	12	6	2	8	82
0	20	20	54	0	6	2	20	82
4	4	8	54	12	6	2	8	82
4	8	12	54	8	6	2	12	82
4	20	24	50	0	6	2	24	82
8	8	16	54	4	6	2	16	82
8	20	28	46	0	6	2	28	82
20	20	40	34	0	6	2	40	82

Minimum Credits required with respect to X and Y