Letter No.-VKSU-42/2007 - 1140 /GS(I), Dated- 12/07/2024

From,

Balendra Shukla
Officer on Special Duty (Judicial)

To,

All Vice-Chancellor
Universities of Bihar.

Sub:- Regarding approval of the newly formulated Ordinance and Regulations under Choice Based Credit System (CBCS) of Master of Computer Applications (MCA) of reduction from 3 years to 2 years, a self-financing programme.

Ref.- (1) Letter No.-BSHEC/O&R/VKSU/MCA/21/2023-541 dated 26-12-2023 of the Member Secretary-cum-State Project Director, Bihar State Higher Education Council, Bihar, Patna
(2) Letter No.-396/Estab/2024, dated 30-04-2024 of the Registrar, Veer Kunwar Singh University, Ara.

Sir,

I am directed to inform that the Hon'ble Chancellor after due consideration of the recommendation made by the Member Secretary-cum-State Project Director, Bihar State Higher Education Council, Bihar, Patna vide his letter rcfcrrcd to abovc and opinion of the University Advisory Committee has been pleased to approve the newly formulated Ordinance and Regulations under Choice Based Credit System (CBCS) of Master of Computer Applications (MCA) of reduction **from 3 years to 2 years**, a self-financing programme of Veer Kunwar Singh University, Ara.

The Hon'ble Chancellor has also been pleased to order that all the Universities are allowed to make 2 years M.C.A. courses instead of 3 years in light of **AICTE Regulations**.

Necessary follow up action may be taken accordingly.

Yours faithfully,

(Balendra Shukla)
Officer on Special Duty (Judicial)

Encls.-**As above**.

VEER KUNWAR SINGH UNIVERSITY, ARA

DEPARTMENT OF COMPUTER SCIENCE

ORDINANCE & REGULATIONS FOR THE MASTER OF COMPUTER APPLICATIONS (M.C.A.) PROGRANME UNDER CHOICE BASED CREDIT SYSTEM (C.B.C.S.) IN THE FACULTY OF SCIENCE

ORDINANCE

1. The Post Graduate Degree Programme Master of Computer Applications in the Faculty of Sciences shall be offered by the Veer Kunwar Singh University, Ara.

2. The Programme shall be of two-year (Four Semesters) duration. The Master of Computer Applications shall be abbreviated as M.C.A.

3. The eligibility criterion for applying for admission in M. C.A. programme is as Follows: - Bachelor (Hon's) degree (B.Sc / B. A.) with at least 45% marks in Computer Applications / Computer Science as Honours subject /major subject/ core course having passed in Mathematics at Bachelor Degree Examination.

    Or

    Bachelor of Computer Applications with at least 45% marks.

    Or

    Bachelor (Hons) degree with 55% marks and computer subject in Subsidiary/ pass course /Allied subject having passed in mathematics at Bachelor Degree.

4. The maximum number of seats for the Master of Computer Applications programme shall be limited to 45 (Forty five).

Fee structure: The fee structure of the programme shall be as per the approved Fee structure as May be prescribed from time to time by' the University. The approved Fee of the programme shall be charged at the time of admission as under.

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Table 1 : Fee per Semester for MCA

SL. NO.	Head / Item	Fee in Rupees
I	Admission Fee	350/-
II	Tuition Fee	6000/-
III	Department Library	4000/-
IV	Fieldwork/ Laboratory Fee	6000/-
V	Development Fee	4000/-
VI	Eklavya & Tarang (one time in each academic session)	50/-
VII	Total	20,400/-
VIII	Miscellaneous (Per Semester)	
	Central library	100/-
	Electricity fee	200/-
	Identity card fee	100/-
	N.S.S. fee	50/-
	Parking	50/-
	Library Maintenances Fund	100/-
	Building Maintenances Fund	100/-
	Medical fee	100/-
	Athletic Fund(for University)	50/-
	Common room Fund	50/-
	Extra-curricular Fee(Cultural)	50/-
	Environmental Protection Fee	50/-
	Student's Welfare fee	30/-
	Poor Student's fund	20/-
	Student's Union fund	100/-
	Society Subscription	50/-
	Magazine fund	50/-
	Hand Book/Directory	50/-
	Total	1300/-
	Total Fee in the 1st Semester	21,700/-
IX	Total Fee in 2nd and 4th Semester (Each Semester) (Excluding I. Card, Hand Book/Directory, Eklavya & Tarang)	21,500/-
X	Total Fee in 3rd Semester(including Eklavaya & Tarang, excluding I. Card & Hand Book/Directory	21550/-/-

Note:-

(i)   The revision of the Fee structure may be made every 3"year after seeking the approval o f the statutory bodies of the University.

6.   The selection of candidates for admission in the M.C.A. programme shall be made by the Department of Computer science VKS University, Ara.

7.   Admission to the first Semester of M.C.A. programme shall be made on the basis of marks obtained by the candidate at the M.C.A. Admission Entrance Test (MCAET) conducted by the University or marks obtained in undergraduate degree examinations as decided by the Academic Council of the University. The test will comprise of 100 marks of multiple- choice type questions. The duration of the test shall be two hours. The question will be asked from mathematics, General Aptitude, English and Computers.

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8. Reservation of seats for different categories of candidates shall be made as per rules of the V.K.S. University, Ara applicable at the time of admission provided the qualify for admission into Programme as required in clause-7 of this ordinance.

9. Seats left unfilled in any of the categories for reserved seats under clause-8 above by reason of the fact that no eligible candidates are available shall be filled - up by following reservation procedure Rules strictly as per sections of the P.U. Act, 1976 (Amended up to date).

10. (a) No applicant shall admitted who in the opinion of the Vice Chancellor should not be admitted in the best interest of the University.

   (b) No applicant shall be admitted who has not applied for admission within the notified time, or who, on being selected for admission, does not get himself/herself enrolled within the specified time except When the delay is condoned by the Vice Chancellor.

11. Every candidate seeking admission to the programme shall pay fees as may be prescribed from time to time by the University. The Fee of the programme shall be charged in full at the time of admission to the programme.

12. The admission of any candidate admitted to the M.C.A. programme may be cancelled if it is found at any later point of time that any document submitted or statement made by him/her in his/her support of his/her admission to the programme is forged (not genuine).

13. No candidate shall be allowed to register as a student in any other course leading to Diploma or a Degree during the academic years of his/her study for the M.C.A. programme.

14. The general superintendence and direction of the programme shall be the responsibility of the Head of the Department.

15. If found guilty of gross misconduct, a student admitted to the M.C.A programme, shall be expelled from the programme at any stage.

16. Any student who attended all courses/papers in a Semester as a regular student and sent up for the End Semester Examination (ESE) but fails to appear in the ESE shall have to appear in the subsequent forthcoming examination o f a particular semester by paying requisite examination fee.

17. A student has attendance less than 75% in any course/paper, then the candidate has to repeat the particular course/paper in the subsequent forthcoming examination by paying the proportionate fee of that semester as decided by University.

18. If a candidate has an attendance of 75% or more but fails in the CIA, in that case, the candidate has to appear for CIA in that particular course/paper in the subsequent forthcoming examination.

19. Every student should fill a registration form before the start of next semester.

20. Minor changes in the above ordinance may be made by the Academic Council if required in the interest of academics.

21. The general ordinance of V.K.S. University, Ara shall cover any aspect not covered in the present ordinance.

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REGULATIONS

1. **General**

1.1 This regulation shall be called the regulations for Master of Computer Applications (M.C.A.) programme of V.K.S. University, Ara.

2. **Programme of Study**

2.1 The Master of Computer Applications '(M C.A), a two-year full-time programme, shall be organised and run by the Department of Computer Science V.K.S. University, Ara..

2.2 The University shall award the Master Degree in the Faculty of Science as "Master of Computer . Applications (MCA)".

2.3 The Examination for the Master of Computer Applications shall consist of Four Semesters.

2.4 The programme Master of Computer Applications shall consist of courses (papers) spread over four semesters (I, II and III & I V) comprising CC- 1 to CC- 14, AECC- 1, AECC-2, AEC-1/SEC- I , EC, DSE- 1 or GE- 1 (as per Table-2). The CGPA shall be awarded on the performance of the candidate on all courses/papers (CC, AECC, AEC/SEC, DSE/GE and EC).

2.5 The syllabus of the programme may be revised as per the demand of different stakeholders by BOCS and duly approved by the Academic Council.

2.6 Course structure for the Master of Computer Applications (M.C.A.) programme is as per Table-2 spanning over four semesters.

Table 2: Course Structure Semester-I

Sl.No	Name of Course	Type of Course	L-T-P	Credit	Mark
1	Computer Architecture	CC-1(Th)	5-1-0	5	100
2	Object Oriented Programming With JAVA	CC-2(Th)	4-1-0	3	100
3	JAVA Programming Lab	CC-2(P)	0-0-4	2	100
4	Relational Database Management System (RDBMS)	CC-3(Th)	4-1-0	3	100
5	RDBMS Lab	CC-3(P)	0-0-4	2	100
6	Data Structure through 'c'	CC-4(Th)	4-1-0	3	100
7	Data Structure Lab	CC-4(P)	0-0-4	2	100
8	Environment Sustainability & Swachchha Bharat Abhiyan Activities	AECC-1	5-1-0	5	100
				Total Credit-25	

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Semester-II

Sl.No	Name of Course	Type of Course	L-T-P	Credit	Marks
1	Statistical Computing and Discrete Mathematics	CC-5 (Th)	5-1—0	5	100
2	Operating system & Shell Programming	CC-6 (Th)	4-1-0	3	100
3	Operating Systems and Linux Lab	CC-6(P)	0-0-4	2	100
4	Internet of Things	CC-7 (Th)	5-1-0	5	100
5	Software Engineering	CC-8 (Th)	5-1-0	3	100
6	Web Technologies	CC-9 (Th)	4-1—0	3	100
7	Web Technologies Lab	CC-9 (P)	0-0-4	2	100
8	Ability Enhancement Course / Skill Enhancement Course (from basket of Table—4)	AEC-1/SEC-1	5-1-0	5	100
					Total Credit-30

Semester-III

Sl.No	Name Of Course	Type Of Course	L-T-P	Credit	Marks
1	Theory of Computation & Compiler Design	CC- 10 (Th)	5-1-0	5	100
2	Machine Learning with Python	CC- 11 (Th)	4-1—0	3	100
3	Machine Learning with Python Lab	CC- 11 (P)	0-0-4	2	100
4	data Communication & Computer Networks	CC- 12 (Th)	5-1-0	5	100
5	Data Mining and Warehousing	CC- 13 (Th)	4-1—0	3	100
6	Data Mining and Warehousing Lab	CC- 13 (P)	0-0-4	2	100
7	Cryptography and Network Security	CC- 14 (Th)	5-1-0	5	100
8	Human, values and professional Ethics and gender sensitization	AECC-2	5-1-0	5	100
	Total Credit-30				

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Semester-IV

Sl.No	Name of Course	Type of Course	L-T-P	Credit	Marks
1	Major Project Dissertation And Viva voce(Based on filed work/ Industrial Training)	EC	0-0-12	10	100
2	CC-5 of other Department of Science or selected from SWAYAM PG Courses	DSE-1	5-1-0	5	100
	Or				
3	Generic Elective (from the basket of Table-3)	'''		5	100
				Total Credit - 15	
				Total credits-100	

* L/T/P: (Lecture/ Tutorial/Practical: Number of classes per week

    (CC)-   Core Course

    (EC)—   Elective Course

    (DSE)-   Discipline Specific Elective Course

    (AEC/SEC)-   Ability Enhancement C curses Skill Enhancement Course (From theBasket)

    (AECC)-   Ability Enhancement Compulsory Course

    (GE) -   Generic Elective Course (from he basket)

Table 3: Basket of GE-1

- No SQL Databases
- Design and Analysis of Algorithms
- Mobile Application Development
- Artificial Intelligence
- Accounting for Managers
- Soft Computing
- Software Project Management
- Cloud Computing
- Optimization Techniques
- Cyber Security
- Any other (Course decided by BOCS and duly, approved by Academic Council.
- Any P.G. course selected from SWAYAM duly approved by Academic Council

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Table 4: Basket of AE C-1 SEC - 1

- Business Communication and Employability Ski11s
- Web Designing
- Financial Risk Management
- Solid waste Management
- Mushroom Culture
- Bio-fertilizer production
- Environmental Law
- Tourism & Hospitality Management
- Life skill & skill development
- Yoga Studies
- Any other Courses decided by BOCS and duly approved by Academic Council.
- Any P.G. Courses selected from S WAYAM related to Skill Enhancement duly approved by Academic Council.

3. Evaluation of Performance Under CBCS

3.1 The performance of a student in each course /paper will be assessed on the basis of a Continuous Internal Assessment (CIA) and the End Semester Examination (ESE).

3.2 The UniversityExamination of each course in all semesters shall have two components:

i. Continuous Internal Assessment (CIA) of CC, GE/DSE containing 30 marks.
ii. End Semester Examination (ESE) of CC, GE/DSE containing 70 marks.
iii. Continuous Internal Assessment (CIA) of AECC and AEC/SEC containing 50 marks.
iv. End Semester Examination (ESE) of AECC and SEC/SEC containing 50 marks.

3.3 The components of CIA shall be:

(a) * Two Mid-Semester \\ Written Tests of one-hour duration each (2 x 7.5) 15 marks
(b) Seminar/Quiz/Assignments 10 marks
(c) Regularity, punctuality and Conduct Total 05 marks

Total 30 marks

*Third mid- semester written test may also be conducted in case of natural calamity/other unavoidable causes. But in that case. Only the best two marks will be considered.

The components of CIA of AECC-1, AECC-2 and AEC-1 SEC-1 shall be:

a) One Mid- Semester Written Test of one hour duration - 10 marks
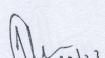b) Seminar/Quiz - 10 marks
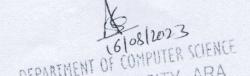c) Assignments - 15 marks
d) Report on above mentioned paper - 15 marks

Total - 50 marks

3.4 The CIA component of the Examination shall be conducted in the Department under the concerned teacher of the course paper and will be responsible for the submission of CIA after evaluation to the Head of the Department.

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3.5 Only the End Semester Examination (ESE) of each semester shall be conducted by the University The ESE of theory courses papers shall be a written examination o f 3 hours duration.

3.6 The fieldwork project dissertation evaluation will be based on CIA and an end-semester examination wherever applicable.

3.7 All such examinations shall be as per the provisions of the Examination Board and Moderation Board of the University

4. Examinations

4.1 The End-Semester-Examination will be conducted by the University. The question paper shall consist of three parts-

Part - A
Ten objective type Questions   10x2=20 marks
Part - B
Five Short Answer Questions   4x5=20 marks
(Four to be answered)
Part -C
Five long answer Questions (three to be answered) 3x10-30 marks

The question paper of AECC and AEC SEC shall consist of three parts-

Part - A
Ten objective type Questions   10x1= 10 marks
Part - B
Five Short Answer Questions   4x4=16 marks (Four to be answered)
Part -C
Five long answer Questions (three to be answered) 3x 08=24 marks

4.2 The examination of the I and III semesters shall be generally held in November-December, and that of II and IV Semester shall be held in May-June.

4.3 Paper Setting and evaluation: For ESE, the paper setting and evaluation will be done by concerned subject teachers.

5. Passing of Examinations and Promotion Rules:

5.1 There shall be no supplementary examination in any of the course /papers in any Semester (I, II, III and IV).

5.2 The candidates who have been admitted to the first Semester Of a two –years postgraduate programme in a session can be placed in the following categories on the basis of their attendance and CIA in the semester.

I. Those who have cleared the CIA and attended the required minimum percentage(75%) of attendance shall appear in the ESE.

II. Those who have not attended the required minimum percentage of attendance(75%) and not cleared CIA shall in no case be permitted to appear in the End Semester Examination .

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5.3 After appearing at the Semester Examination, the candidates can be placed in the following categories in the context of declaration of the results of the Semester Examination:

(i) To be declared passed in End Semester Examination in any paper/course, a candidate must secure at least a 'P' grade as per Table-6 in each paper/course separately in CIA and ESE

(ii) A candidate may be promoted to next semester based on the following criteria as given in Table-5.

Table 5: Promotion Criteria

S.No	Semester	Conditions to be fulfilled for Promotion
1	From Semester-I to Semester-II	Attended all courses in Semester-I as a regular student and sent up *'* for the Semester-I examination
2	From Semester-II to Semester III	Attended all courses in Semester-I and Semester-II as a regular student. The candidate must earn at least 35 credits of Semester-I and II taken together in CC, AECC-I, and AEC-I/SEC-I.
3	From Semester-III to Semester-IV	Attended all courses in Semester-I,II and III as a regular student. The candidate must earn at least 85 credits of Semester-I, II and III taken together in CC, AECC-I, AECC-2 and AEC-I/SEC-I.

**Sent up for End Semester Examination here refers to those candidates who have a minimum of 75% attendance in each course/paper separately and cleared the CIA of respective course/paper conducted by the Department.

(iii) Candidates shall have to clear their backlog paper (s) in the subsequent end semester examination of that semester whenever it is available.

(iv) The Final result will be published only after he/she has cleared all 100 credits.

(v) The final result or the Master of Computer Applications shall be published on the basis of the candidate's performance in all courses spread over four semesters (Table-2)

(vi) Since it is a continuous evaluation programme, a student shall be awarded Semester Grade Points (SGPA) at the end of the first semester examination and in the subsequent semester till the third semester and finally in the forth Semester, the result will be awarded on the basis of CGPA. NO grade points will be awarded if there is any backlog present.

(vii) A student has to score a minimum grade P' in his, her CIA Failing to secure minimum marks, he/she shall have to repeat the CIA along with the students of the same semester of the next academic session.

(viii) The promoted candidate will not be awarded any SG PA /CGPA till he/she clears all the Backlogs.

(ix) If a promoted candidate has passed in CIA but Fail in ESE paper / papers, he/she shall retain their CIA score and will reappear in the paper / papers of the ESE only whenever available.

(x) Students undertaking any PG course from SWAYAM as GE and SEC shall be eligible for credit transfer if he/she gets a certificate for successful completion from SWAYAM.

(xi) The candidate must clear the Programme within a maximum of four years. Academic Council may give one additional year of relaxation in case of exceptional circumstances.

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NB - Special Provision

In case of serious Health problems and other strictly unavoidable circumstances, relaxation in required attendance might be condoned up to a maximum 15%, and in no case, a leaning will be entitled to avail condo nation beyond.

6. **Improvement of Result:**

It a candidate clears Semesters I, II and III ESE. he/she may apply for the improvement o f his/her result in a maximum of two courses/papers of the entire Programme. He she can avail this facility only in theory papers. The better of the two results will be treated as the final result o f candidates in those papers.

7. **Declaration of Result:**

The Teacher/Examination Department shall use the following grading system:
Results in the form of grade points consequent upon evaluation will be awarded in the following two manners-

I. At the end of each semester which will be titled as Semester Grade Point Average (SGPA).

II. At the end of the Programme, which will be titled as Cumulative Grade Point Average(CGPA).
The explanations for the above manner of publishing results in the form of Grade point as per Table-6:
The grading system stated below shall be used at the time of preparation of the result of the candidates who appeared at the examination.

Table 6: Grading system

S.No	Letter Grade	%Range	Numerical Letter Grade	Description of Grade
1	O	>=90-100	10	Outstanding
2	A+	>=80<90	9	Excellent
3	A	>=70<80	8	Very Good
4	B+	>=60<70	7	Good
5	B	>=55<60	6	Above Average
6	C	>=50<55	5	Average
7	P	>=45<50	4	Pass
8	F	<45	0	Fail
9	Ab	0	0	Absent

There shall be a Semester Grade Point Average (SGPA) for each semester o the basis of Grade obtained in that Semester. The SGPA for every Semester as calculated as :-

$$SGPA = \frac{\sum_{i=1}^{n} m_i O_i}{\sum_{i=1}^{n} O_i}$$

n -- number of courses in the said semester
m_i -- the numerical value of Grade obtained in the said semester
O_i -- number of credits for the said semester

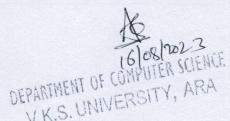The calculations of SGPA and CGPA is illustrated as example in Table - 7

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Table 7: SGPA and CGPA Calculation

Course	Credit mi	Grade Latter	Grade Point 0i	Credit Point(Credit X Grade)	S.G.P.A(Credit Point/Credit)
Semester –I					
CC-I (Th)	05	A	8	40	
CC-2 (Th)	03	B+	7	21	
CC-2 (P)	02	B+	7	14	
CC-3 (Th)	03	B	6	18	6.4(160/25)
CC-3 (P)	02	B	6	12	
CC-4(Th)	03	C	5	15	
CC-4(P)	02	C	5	10	
AECC-1	05	B	6	30	
Total	25	C	5	160	
Semester-II					
CC-5(Th)	05	C	5	25	
CC-6(Th)	03	B+	7	21	
CC-6(P)	02	B+	7	14	
CC-7(Th)	05	B+	7	35	
CC-8(Th)	05	A	8	40	6.5(195/30)
CC-9(Th)	03	C	5	15	
CC-9(P)	02	C	5	10	
AEC-I/SEC-1	05	B+	7	35	
Total	30			195	
Semester-III					
CC-10(Th)	05	A+	9	45	
CC-11(Th)	03	B+	7	21	
CC-11(P)	02	B+	7	14	
CC-12(Th) .	05	A	8	40	7.67(230/30)
CC-13(Th)	03	B+	7	21	
CC-13(P)	02	B+	7	14	
CC-14(Th)	05	B+	7	35	
AECC-2	05	A	8	40	
Total	30			230	
Semester-IV					
EC	10	B+	7	70	
DSE-I or GE-I	05	B	6	30	
Total	15			100	6.67(100/15)
Grand Total	100			685	6.85(685/100)

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 25; SGPA : 6.4	Credit : 30; SGPA : 6.5	Credit : 30; SGPA : 7.67	Credit : 15; SGPA : 6.67
CGPA	(25 x6.4 + 30 x 6.5+ 30 x 7.67 + 15 x 6.67) / 100 = 6.85		

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- The award sheet of the students will show the grades obtained in all courses offered in each semester, the SGPA / CGPA and the promotion status.
- The student shall have to obtain a minimum CGPA = 4.5 for the award of Master of Computer Application Degree
- If a candidate got CGPA less than 4.5 but earned required credits and pass in all papers / courses then 0.5 will be added in actual CGPA obtained but total CGPA should not exceed 4.5.
- The following formula shall be used to find percentage equivalent to CGPA –
  % of Marks = (CGPA) X 10

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