

PATNA UNIVERSITY
DEPARTMENT OF STATISTICS

ORDINANCE

The 3 year (Six Semester)

Master of Computer Applications (MCA) as self financing course in the faculty of Science
under
CHOICE BASED CREDIT SYSTEM (CBCS)

PREAMBLE:

The CBCS provides an opportunity for the students to choose courses from the prescribed list of courses comprising core, elective and ability enhancement courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students of universities of Bihar to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. The Universities shall follow the guidelines formulated by the UGC in order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations.

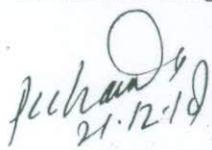
Objective of MCA course in the department of Statistics, P.U.:

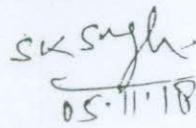
The M.C.A. course is started in the Department of Statistics, Patna University; with an objective prepare students for productive careers in technological research, software industries, banking and other related sectors. The main aim is to make the students competent software professionals to meet the demands of the fast growing IT industries at the national and also at the global level. The course emphasizes the applications of software technology to solve various scientific, commercial, networking and computing problems. After the successful completion of this course students could get a wide range of jobs in various multinational companies, private sectors, government organizations, banks etc.

1. General

- 1.1 The ORDINANCE and the REGULATIONS shall be called the 'Admission Ordinance' and 'Regulations of Examination' for MCA programme to be applicable in the Department of Statistics, Patna University.
- 1.2 These ordinance and regulations shall be effective from the academic session 2018-19.
- 1.3 The MCA programme shall consist of 31 courses/ papers (excepting 2 Ability Enhancement Compulsory Courses (AECC)) spread over six semesters. This programme consists of **Core Courses (CC)**, **Discipline Specific Electives (DSE)**, **Practical, Project work/ Internship/ Dissertation** as described in Table 1. There shall be six courses/papers in each semester from Semester I to V, each course carrying 100 marks and only one course being titled as "Project and Dissertation"


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Dr. S. K. Singh
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Annexure I

**DEPARTMENT OF STATISTICS
PATNA UNIVERSITY**

**ORDINANCE
&
REGULATION**

for

The 3 yr (Six Semesters)
Post Graduate Degree Programme
in

**MASTER OF COMPUTER APPLICATION
(MCA), A SELF FINANCING COURSE**

in the faculty of Science
under

CHOICE BASED CREDIT SYSTEM (CBCS)

(To be effective from 2018 -19)

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Institute (Headmaster)
Institute Annexure

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(Choice Annexure)

carrying 400 marks. The entire curriculum shall be of 3400 marks taken together. The final CGPA/class shall be awarded on the performance of the candidate on 31 courses/ papers which includes the 20 Core Courses/ papers, five Practicals, five DSEs courses/papers and one Project work/ Internship/Dissertation. (140 credits).

2. OUTLINE OF THE CHOICE BASED CREDIT SYSTEM (CBCS) for MCA:

2.1 It consists of courses viz. (i) **Core Course (CC)**,(ii) **Discipline Specific Elective (DSE)**, (iii) **Ability Enhancement Compulsory Courses (AECC)**, (iv) **Practical** (v) **Dissertation/Project/ Internship/ Industrial Training**. The nature of these courses are defined below.

2.1.1 Core Course (CC):

There will be four (4) core courses in each of the semesters in I, II, III, IV, V. each Core course carrying 100 marks. These Core Courses are exclusively designed to meet I.T requirements of various Organizations and also help in planning, Designing and building of complex commercial Application Software and System Software.

2.1.2 Discipline Specific Elective (DSE):

Generally a course which can be chosen from a pool of courses as given in Table 3 of "Basket" and which may be very specific or specialized or advanced or supportive to the subject/ discipline of study or which provides an extended scope or which enables an exposure to some other subject/discipline/domain or nurtures the candidate's proficiency/skill . There are five (5) DSE courses, each to be studied as fifth course/paper in each semester from semester I to V. A DSE course has been designed to acquire special/advanced knowledge, which will support to study a project work/internship in semester six.

2.1.3 Ability Enhancement Compulsory Courses (AECC): (Qualifying and Non-CGPA course):

Department of Statistics, P.U. will run a number of **Ability Enhancement Compulsory Courses (AECC)** which will be of qualifying nature. MCA student has to qualify in these courses, but its credit will not be added to final CGPA.

2.1.4 Dissertation/Project/ Internship/ Industrial Training:

Each MCA student has to carry a project work/internship/training in Industy/ Research Organization in the sixth semester which will be of 400 Marks (20 credits). This project work includes presentation of synopsis, project report with viva-voce.

2.1.5 Practical

In each of the five semesters viz. I, II, III, IV, V, a practical paper has been introduced. This practical paper is based on curriculums of course structure of respective semester.

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3. CREDIT

The total credits, required for completing an MCA program is 140.

3.1 The details of credits for individual components and individual courses are given.

Table 1: Structure of the 3 Yrs (Six Semesters) Mater of Computer Application (MCA) under CBCS:

Semester	No of Courses/ Papers	Credit per Course/ paper	Total credit	Minimum No of Learning Hours#	No of Core Course/ Paper	No of Practical Paper	Code and nature of DSE course/paper	Code and nature of AECC course/paper	Code & Number of Courses/ semester
I	06	04	24	240	4	1	1	-	CCs-4 DSEI ^{\$} -1 Practical-1
SEMESTER BREAK									
II	06+02*	04 + (2x02) 04*	24+04*	280	4	1	1	1	CCs-4 DSEII ^{\$} -1 AECC1*-1 Practical-1
SEMESTER BREAK									
III	06+02*	04+(2x02) 04*	24+04*	280	4	1	1	1	CCs-4 DSEIII ^{\$} -1 AECC2*-1 Practical-1
SEMESTER BREAK									
IV	06	04	24	240	4	1	1	-	CCs-4 DSEIV ^{\$} -1 Practical-1
SEMESTER BREAK									
V	06	04	24	240	4	1	1	-	CCs-4 DSEV ^{\$} -1 Practical-1
SEMESTER BREAK									
VI	01 (Industrial Project& Dissertation)	20	20	-	1	-	-	-	-
Total	31+2*	-	140+08*	1280	21	5	5	2	31+2*

- * These two papers i.e. AECC-1 in semester II and AECC-2 in semester III, each of four(4) credits(total 08 credits) are of qualifying nature "but compulsory and mandatory to pass" will not be added to final CGPA.

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For Tutorial (T)/ Practical (P)/ Field Work (FW)/ Internship etc. extra working hour to be added as per requirement and will be decided by the Board Of Courses of Studies(BOCS) of the respective subject.

\$ The five **Discipline Specific Elective (DSE)** to be studied in each semester I, II, III, IV and V (refer table no. 3) may be (as decided by BOCS): **Theory papers**

- / One Theory paper and One Practical paper
- / One Theory paper and One Project work
- / One Theory paper and One Field work
- / Both Project work/ Internship

N.B. : It is desirable that all students of MCA course should be given adequate exposure over and above the class room teaching to enhance the scope of employability.

3.2. There will be five Discipline Specific Elective(DSE) papers and two AECC papers. Students may opt for any elective course out of a list of a DSE papers named "**Basket**" given in table 3 offered by the Department as per his/her choice with the prior permission of the concerned teacher of the department. The list of Discipline Specific elective (DSE) papers and MCA(under CBCS) syllabus have been approved by the chancellor's office, Bihar in the year 2018.

3.3. The final CGPA/class will be decided on the performance of the student in the 31 courses/papers (CCs=20, Practical = 05, DSE = 05, Project Report = 01) of 3400 marks and 140 credits. Besides thirty one(31) courses, an MCA student has to opt 2 additional papers, namely AECC-1 and AECC-2 as mentioned below* which will carry 4 credits each.

3.4. The two AECC papers will be qualifying in nature and a student has to score at least 45% marks in these papers. Grade will be awarded separately for these courses, however, performance in these elective courses/ papers will not be considered for awarding the final CGPA/ class.

3.5. Ability Enhancement Compulsory Courses (AECC):

Department of Statistics will run two **Ability Enhancement Compulsory Courses (AECC)** which will be of qualifying in nature and a student has to qualify in both these courses. The courses are:

AECC-1 : Environmental Sustainability (2 Credit)
 & Swachchha Bharat Abhiyan Activities (2 Credit) = 04 Credits

AECC- 2 : Human Values & Professional Ethics (2 Credit)
 & Gender Sensitization (2 Credit) = 04 Credits

N.B. :Students will do assignments/project work related to institutional social responsibilities including Swachchha Bharat Abhiyan Activities during SEMESTER BREAK.

4. Admission to MCA Programme Part-I (First Semester)

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4.1 Admission to MCA Part-I (First Semester), shall be made in order of merit. The merit list shall be prepared on the basis of marks obtained by the applicant in the Entrance test.

4.2 The Entrance Test will be organised by the Patna University to be named as 'Patna University' – MCA Entrance Test (being abbreviated as "PUMCAET") through the Department of Statistics. The merit list shall be prepared on the basis of marks obtained by the applicant in the PUMCAET.

Eligibility Criteria

5.1. The eligibility criterion for applying for admission in MCA Programme is as follows:-

- (i) Bachelor Hons 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 and 10+2 level.

Or

- (ii) Bachelor degree with 55% marks in Subsidiary / Pass course /Allied subject having passed in Mathematics at Bachelor Degree and 10+2 level.

5.2 List of Allied subjects:

Main Subjects	Allied Subjects
Computer Applications	<p>Group A</p> <p>B.Sc./B.A. Hons. Degree in Mathematics/ Statistics / Physics /Electronics with Computer Applications/ Computer Science as a subsidiary subject having passed in Mathematics at Bachelor degree and 10+2 level.</p> <p>Group B</p> <p>B. Tech./ B.E in Computer Science /Information and Communication Technology /Electronics /Electronics & Communication Engineering/ Electrical & Electronics/ Electronics and Instrumentations having passed in Mathematics at Bachelor degree and 10+2 level.</p>

5.3 Structure of the entrance test:

Questions shall be of multiple choice type with four options with a single correct answer. The entrance test shall be held on OMR sheet. The duration of the test shall be of 2:00 hour. The total marks will be 100 marks. Each question carries one Mark. There shall be no negative marking. There shall be four sections in the question paper as mentioned in Table of 5.4.

5.4 Table. Details of entrance test

Section A	Mathematics	30 marks	30 questions	1 mark for each question
Section B	General Aptitude Test	25 marks	25 questions	1 mark for each question

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238

Section C	English	20 marks	20 questions	1 mark for each question
Section D	Computer	25 marks	25 questions	1 mark for each question

5.5 The application fee for applying in admission to M.C.A. course will be Rs.1000/- only. This will include the fee for admission test. On the recommendation of the Academic Council and with the approval of the statutory bodies of the Patna University, application fee may be revised whenever required in future.

6. No. of seats: 45 : Any change in the number of seats in a in MCA programme shall be decided by the Patna University in accordance with the guidelines received from the State Government from time to time.

7. Reservation of Seats

i. The reservation of seats in each course shall be as per reservation rules of the Government of Bihar.

ii. Reservation for Persons with Disabilities (PWD) candidates will be followed as per orders of the Government of Bihar issued from time to time.

iii. A candidate seeking admission against under various reserved categories he/she belongs i.e. SC/ST/EBC/ OBC/WBC etc. has to mention about the category at the time of submission of the main admission application form and attach the supporting document for the same from proper authority to substantiate his/ her claim. Documents received separately later on shall not be entertained.

8. No applicant shall be admitted to the course who has not applied for admission within the notified time period.

9. The applicants will have to register themselves with the Patna University to be able to appear in the Patna University examination within the stipulated period /at the time of admission.

10. No such applicant shall be admitted who, in the opinion of the Head of the Department and thereafter being endorsed by the P.U. Vice-Chancellor, should not be admitted in the best interest of the University.

11. During the tenure of the MCA course, if it is found that any document/documents or submission made by a student in support of his/her admission to M.C.A. course is/are forged or fake, his/her admissions shall automatically stand cancelled. The concerned candidate shall be solely responsible for the cancellation of his/her admission and other punitive action/actions.

12. The Vice Chancellor of the Patna University has the absolute right to reject /deny admission to any candidate without assigning any reason if he/she is judged that the action suits best interest of the University.

13. No candidate shall be allowed to register himself/herself for any other degree course in the same University or any other University during the same academic session of his/her study of M.C.A..

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14. Medium of Instruction/Teaching

Medium of instruction for teaching-learning and examination will be in English.

15. Fee Structure:

The fee structure of the course will be as follows:

	Fee Details	Amounts in (Rs.)
I	Admission Fee (per semester)	150/-
II	Registration Fee(one time) if Applicable	As per University Norms
III	Caution Money one time and Refundable subject to the completion of the course.	5,000/-
IV	Tuition Fee per semester	6000/-
V	Practical/Development fee per semester	3000/-
	Contingency Fee per semester	1000/-
VI	Examination Fee per semester (For University)	1,000/-
VII	Miscellaneous (per semester)	
	Central Library	100/-
	Electricity Fee	300/-
	Identity Card Fee	60/-
	NSS Fee	50/-
	Parking	50/-
	Internal Examination Fee	300/-
	Building Maintenance Fund	100/-
	Medical Fee	100/-
	Athletic Fund (For University)	100/-
	Common Room Fund	50/-
	Extra Curricular Fee(Cultural)	50/-
	Environmental Protection Fee	20/-
	Student's welfare Fee	10/-
	Poor Students Fund	10/-
	Student's Union Fee	100/-
	Society Subscription	50/-
	Magazine Fund	50/-
	Hand Book/ Directory	50/-
VIII	Total	1550/-
	Eklavya & Tarang per semester	10/-
IX	Total amount in First semester	17,710 + registration fee

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X	2 nd semester (excluding Eklavya & Tarang)	12,700
XI	3 rd semester(including Eklavya & Tarang)	12,710
XII	4 th semester(excluding Eklavya & Tarang)	12,700
XIII	5 th semester(including Eklavya & Tarang)	12,710
	6 th semester(excluding Eklavya & Tarang)	12,700
XIV	Field Work (per semester) if applicable	2000/-

16. If need arises, the University with the approval of relevant Statutory bodies and the Governor's Secretariat may modify / add or delete any provision of this ordinance.

MCA CBCS Syllabus

Table 2:

Semester I Code	Paper Code	Title	Marks for		Total Marks (per course)	Pass Marks (Per course)	Total Credit (per course)
			CIA	ESE			
I	CS11	Information Technology	30	70	100	45% in CIA 45% in ESE	4
	CS 12	Programming and Data Structure with 'C++'	30	70	100	45% in CIA 45% in ESE	4
	CS 13	Discrete Mathematical Structure	30	70	100	45% in CIA 45% in ESE	4
	CS 14	Digital Logic and Computer Design	30	70	100	45% in CIA 45% in ESE	4
	CS 15	DSE- I	30	70	100	45% in CIA 45% in ESE	4
	CS 16	Practical	50	50	100	45% in CIA 45% in ESE	4
			Total		600		24
II	CS21	Object Oriented Programming in Java	30	70	100	45% in CIA 45% in ESE	4
	CS 22	Statistical and Numerical Computing	30	70	100	45% in CIA 45% in ESE	4

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234

	CS 23	Operating System and Shell Programming	30	70	100	45% in CIA 45% in ESE	4
	CS 24	Formal Language and Automata Theory	30	70	100	45% in CIA 45% in ESE	4
	CS 25	DSE -II	30	70	100	45% in CIA 45% in ESE	4
	CS 26	Practical	50	50	100	45% in CIA 45% in ESE	4
	CS 27	AECC-1 (Qualifying & non CGPA)	50	50	100	45% in CIA 45% in ESE	4
			Total		600+100		24+4
III	CS31	Advance Java Programming using J2EE	30	70	100	45% in CIA 45% in ESE	4
	CS 32	Data Communication and Computer Network	30	70	100	45% in CIA 45% in ESE	4
	CS 33	Data Base Management System	30	70	100	45% in CIA 45% in ESE	4
	CS 34	Optimization Technique	30	70	100	45% in CIA 45% in ESE	4
	CS 35	DSE -III	30	70	100	45% in CIA 45% in ESE	4
	CS 36	Practical	50	50	100	45% in CIA 45% in ESE	4
	CS 37	AECC-2 (Qualifying & non CGPA)	50	50	100	45% in CIA 45% in ESE	4
			Total		600+100		24+4
IV	CS41	Web Technologies	30	70	100	45% in CIA 45% in ESE	4
	CS 42	Software Engineering	30	70	100	45% in CIA 45% in ESE	4
	CS 43	Computer Graphics	30	70	100	45% in CIA 45% in ESE	4
	CS 44	Big Data Analysis & Cloud Computing	30	70	100	45% in CIA 45% in ESE	4
	CS 45	DSE -IV	30	70	100	45% in CIA	4

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233

					45% in ESE	
	CS 46	Practical	50	50	100	45% in CIA 45% in ESE
			Total		600	
V	CS51	Design and Analysis of Algorithm	30	70	100	45% in CIA 45% in ESE
	CS 52	Data Mining & Data Warehousing	30	70	100	45% in CIA 45% in ESE
	CS 53	Artificial Intelligence	30	70	100	45% in CIA 45% in ESE
	CS 54	Advance Computer Architecture	30	70	100	45% in CIA 45% in ESE
	CS 55	DSE- V	30	70	100	45% in CIA 45% in ESE
	CS 56	Practical	50	50	100	45% in CIA 45% in ESE
			Total		600	
Sem. I-V		TOTAL			3000+ 200	1350
						120+8

Semester	Paper Code	Title	Marks for		Total Marks	Pass Marks	Total Credits
			CIA	ESE			
VI	CS61	(Project & Dissertation)	100	300	400	45% in CIA 45% in ESE	20
	Grand TOTAL				3400 +200	1530 of 3400	140+8

Table 3 :Basket:

List of Discipline Specific Electives(DSE) Papers:	
Code / Paper	Select any one of the following for each Elective
CS-15/ DSE - I	(I) Principles of Management (II) Organizational Behaviour (III) SWAYAM

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232

CS-25/ DSE - II	(I) Financial Accounting (II) E-Commerce (III) SWAYAM
CS-35 /DSE - III	(I) Parallel & Distributed Computing (II) Managerial Economics (III) SWAYAM
CS-45/ DSE - IV	(I) Compiler Design (II) Digital Image Processing & Multimedia (III) Information Security
CS-55/ DSE - V	(I) Cryptography (II) Quantum Computing (III) Visual Programming (IV) Satellite and Mobile Communication Networks (V) Machine Learning and Soft Computing

REGULATIONS for Examination of M.C.A. (Semester System) in the Department of Statistics, Patna University

1. General

- 1.1 These regulations shall be called the "Regulations of Examination" for M.C.A.
- 1.2 These regulations shall come into force from the academic year 2018-2019.

2. Programme of Study

- 2.1 The durations of M.C.A. (Semester System) course shall be of Six semesters spread over three academic years. Each semester shall be of one hundred twenty (120) teaching days.
- 2.2 Academic session of each year will start from July to June . First academic session of Six months i.e. July to December comprises of Three semesters viz. I, III and V. Second academic session of six months i.e. January to June comprises of three semesters viz. II, IV and VI.
- 2.3 The M.C.A. Course shall consist of 33(31+2) papers spread over Six semesters. There shall be Six main papers in first semester, seven papers in second semester(six main papers plus one AECC-1 paper), seven papers in third semester(six main papers plus one AECC-2 paper), six papers in fourth semester, six main papers in fifth semester, each main papers carrying 100 marks, and one main

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paper being titled as "Project and Dissertation" in sixth semester carrying 400 marks. The entire curriculum shall be of 3400 marks taking all the 31 main papers together. However, the class shall be awarded on the performance of the candidate on 31 papers including 20CCs, five DSEs and Five Practical papers and one paper of "Project and Dissertations".

N.B.: The papers as AECC-1 in second semester and AECC-2 in third semester will be of qualifying nature and not to be included in 3400 marks.

- 2.4 The distribution of papers like theory, practical, field work, project, internship, dissertation etc. with number of credits is specified in each paper in the course structure of the subject concerned of the department.

2.5 The term ‘credit’ means weightage given to a course/paper in relation with the instructional hours assigned to it. One credit will generally consist of ten hours of instruction. The MCA course shall be of one hundred forty(140) credits divided as 24 credits in first semester, 24 credits in second semester, 24 credits in third semester and 24 credits in four semester, 24 credits in fifth semester and 20 credits in six semester. The number of credit for each paper of the MCA programme shall be specified in the course structure of the subject concerned.

3. Evaluation of Performance Under Semester System

- 3.1 The performance of a student in each paper will be assessed on the basis of a Continuous Internal Assessment (CIA) of 30 marks and the End of Semester Examination (ESE) consisting of 70 marks.

3.2 The components of C.I.A. are follows :

(i) Two mid-semester written tests of one hour duration each(8 marks) = $8 \times 2 = 16$ Marks

(ii) Seminar/Quiz = 04 Marks

(iii) Assignment = 06 Marks

(iv) Punctuality and conduct = 04 Marks

Total = 30 Marks

3.3 The performance of a student in the elective papers DSE and AECC in each semester addressing the issues of i. Skill Development, ii. Human Values and Professional Ethics and Gender Sensitization iii. Environment and Sustainability and Swachchha Bharat Abhiyan Activities shall be assessed on the basis of a continuous Internal Assessment (CIA) of 50 marks and the End Semester Examination (ESE) consisting of 50 marks.

3.4 The Project and Dissertation paper shall be as follows:

(i) Project approval & Synopsis with viva- voce = 100 Marks

(ii) Final project submission with viva voce = 300 Marks

Total = 400 Marks

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- 3.5 The concerned teacher of the course/paper shall be responsible for conducting the mid-semester tests and other components of the CIA.
- 3.6 The ESE will be written examination examinations of 3-hours duration conducted by the University.
- 3.7 The evaluation of Practical paper and field work, wherever applicable will be based on CIA and an end-semester practical examination.
- 3.8 All such examination shall be as per the provisions of examination board and moderation board of the Patna University.
- 3.9 Only those students who secured minimum qualifying marks in 45% in the CIA shall be allowed to fill up the End Semester Examination form.
- 3.10 The marks of CIA in each paper shall be submitted by the Department along with the End semester Examination form, failing which the student may not be issued admit card for the examination.

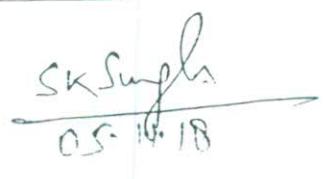
4. Examinations :

- 4.1 The End-Semester-Examination will be conducted by the University. The Mid Semester examinations and other components of CIA shall be conducted and evaluated by the Department of Statistics. The practical examinations wherever applicable shall be conducted in the Department. The Head of the Department will appoint external examiner(s) for the practical End Semester Examination with the approval of the University. The mid-semester tests will be conducted and evaluated by the teacher concerned. The answer scripts of the mid-semester tests shall be shown to students by the concerned teacher.
- 4.2 The End of Semester Examination (ESE) shall be named as follows:
 - (a) M.C.A. 1st Year - Semester I Examination
and Semester II Examination respectively.
 - (b) M.C.A. 2nd Year - Semester III Examination
and Semester IV Examination respectively.
 - (c) M.C.A. 3rd Year - Semester V Examination
and Semester VI Examination respectively.
 - (d) Syllabus for each paper shall be divided into at least 5 units. Based on this, the question paper pattern for the End Semester Examination shall be divided into three parts A, B, C comprising of objective type questions with multiple choice, short answer type questions and long answer type questions respectively as mentioned below :

Part	Nature of questions	Number of questions to be asked	Number of questions to be answered	Marks of each question	Total marks
Part-A	Objective type questions with multiple choice	10	10	02	20
Part-B	Short answer	06	04	05	20


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	type questions				
Part-C	Long answer type questions	05	03	10	30
Total Marks					70

Part - A

Ten objective type Questions - All questions to be answered
 (Questions shall be picked up from the whole syllabus
 Preferably two questions from each unit) $10 \times 2 = 20$ marks

Part-B

Six short Answer Questions – Four questions to be answered
 (Questions shall be picked up from the whole syllabus
 preferably one question from each unit) $4 \times 5 = 20$ marks

Part - C

Five long answer Questions -Three questions to be answered.
 (Questions shall be picked up from the whole syllabus
 preferably one question from each unit) $3 \times 10 = 30$ marks

- 4.2 The examination of I, III and IV semesters, shall be generally held in the month of November-December and that of II, IV and VI semester shall be held in the month of May-June.
- 4.3 In formulating the entire programme of studies, each Department shall be guided by the consideration that at the Postgraduate level, students should be familiar with all the sub-disciplines, trends and paradigms of the subject contributing to the knowledge pool and also the value education and employability factor. Keeping this in view the Department will decide subject based 20 core papers, 5 DSE papers, 2 AECC paper and 5 Practical papers and 1 Project and dissertation Paper.
- 4.4 Paper Setting: For ESE, 50% examiners will be engaged from outside the university by the Patna University as per the provisions of the examination board.
- 4.5 In Subjects, where there is Practical / Field Study/ Internship/ etc. are not more than 4-5 credits should be allowed for such papers in each semester. The distribution of marks for CIA and ESE for such papers shall be decided by the Board of Courses for Study (BOCS) of the respective subject with the approval of the University and details are mentioned in the syllabus for which 50 marks will be for CIA and 50 marks for ESE.
- 4.6 All practical papers shall be evaluated by two external examiners. The distribution of CIA marks in practical papers shall be as per the course structure.

5. Passing of Examinations and Promotions Rules**Promotion Rules**

- 5.1 There shall be no supplementary examination in any of the papers in any semester. (I, II, III , IV, V and VI).
- 5.2 The candidates who have been admitted to the First Semester of a three year MCA Programme in a session can be placed in the following categories on the basis of their attendance in the Semester.

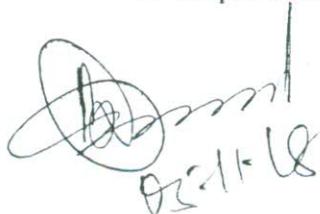
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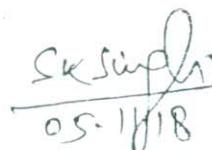
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- (i) Those who have cleared the CIA and attended the required minimum percentage (75%) of attendance of lectures /practical classes separately.
- (ii) Those who have not attended the required minimum percentage of attendance (75%) both in Theory and Practical shall in no case be permitted to appear in the End Semester Examinations.
- 5.3 After appearing at the Semester Examination, the candidates can be placed in following categories in the context of declaration of the results of the Semester Examination (ESE):
- (i) To be declared passed in End Semester Examination in any subject, a candidate must secure at least 45% marks in each paper separately in CIA, theory and practical.
 - (ii) If a candidate secures 45% marks in at least three papers in his/her First/Second/Third End Semester Examination he/she shall be promoted to next higher semester.
 - (iii) Candidates shall have to clear their backlog paper(s) in the next end semester examination of that semester whenever it is available.
 - (iv) Even if a student is promoted to Fourth Semester, his/her final result will only be declared when he/she has cleared all their backlog papers.
 - (v) Final result of M.C.A. Course shall be published on the basis of candidate's performance in the 31+2 papers spread over Six semesters provided he/she has passed with minimum qualifying marks of 45% in the papers of each semester.
 - (vi) The Final result will be published only after he/she has cleared all the papers securing minimum qualifying marks.
 - (vii) Since it is a continuous evaluation programme, student shall be awarded Grade Point (GP) at the End of each Semester Examination and cumulative Grade Point (CGP) at the End of Final End Semester Examinations in 10 point scoring system.
 - (viii) There shall be no supplementary examination. A student has to score minimum 45% marks in his 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.
 - (ix) If students fail to secure minimum 45% marks in CIA of any paper his/her result will be declared as failed in that paper. Students shall have to reappear in that paper in the same semester of next academic session.
 - (x) The name of the promoted candidate/candidates will not be included in the merit list of that subject.
 - (xi) A promoted candidate, if he has passed in CIA but fails in theory paper/papers, he/she shall retain his/her CIA score and will reappear in the theory paper only of the semester whenever available. However, if a candidate is declared fail in any End Semester Examination, shall retain nothing and will have to redo the course work of failed semester again and he has to appear again in CIA as-well-as theory paper.

6. Improvement of Result :


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P. C. Choudhary
21.12.18


S. K. Singh
05.11.18

If candidate passes in End Semester Examination (ESE), he/she may apply for the improvement of his/her result in maximum of two papers of the fourth semester. He/she can avail this facility only in theory papers. Better of the two results will be treated as final result of candidates in those papers.

However, the name of such candidates with improved result will not be included in the merit list.

7. Declaration of Result :

The following grading system shall be used by Teacher/Examination Department:

<i>Letter Grade</i>	<i>Percentage Range</i>	<i>Numerical of Letter Grade</i>	<i>Description of Grade</i>
O	100-91	10	Outstanding
A++	90-81	9	Excellent
A+	80-71	8	Very Good
A	70-61	7	Good
B+	60-51	6	Average
B	50-45	5	Pass
F	Less than 45	Less than 5	Fail

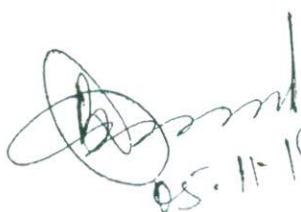
8. Examinations :

- 8.1 The End Semester Examinations (ESE) shall be conducted by the University. The continuous Internal Examinations (CIA) shall be conducted by the concerned department.

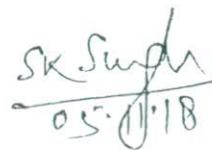
9. Passing of Examination :

- 9.1 A student shall be declared to have 'passed' and promoted to the next semester when he/she earns 'B' grade or above grade as mentioned in the table in section 7 in the semester examination covering continuous evaluation, mid-term and end-term examinations in all the courses for which he/she was registered in the said semester.

- (i) In order to be promoted from Semester I to Semester II, a candidate has to pass in at least three papers in Semester I Examinations.
- (ii) In order to be promoted to the Semester III, a candidate needs to pass in at least three papers of Semester I and three papers of Semester II.
- (iii) In order to be promoted to the Semester IV, a candidate must clear all papers of semester I, at least three papers of semester II and three papers of semester III.
- (iv) In order to be promoted to the Semester V, a candidate must clear all papers of semester II, at least three papers of semester III and three papers of semester IV.
- (v) In Semester VI, a candidate needs to have cleared all the thirty one papers for the award of the Degree.
- (vi) A Student passed or promoted to the next Semester shall be entitled to get admitted in the Semester to which he/she has been declared passed/promoted.


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- 9.2 A student will be deemed as 'FAILED' in a semester when he/he gets 'F' grade in more than 50% of the papers offered in the examinations to meet the requirements. Such students will be advised by the University to repeat the semester on payment of semester fee or the half of the academic year fee.
- 9.3 A student who has secured less than 'B' GRADE in one or more course may also be promoted to the next semester if he/she has not otherwise failed as per section above. However, he/she will have to re-appear at the examination of such courses one time only as and when it is held or at the time of regular End-semester examination (ESE) in which he/she has been promoted.
- 9.4 A student shall be declared to have failed in the programme when he/she fails to qualify for promotion to the next semester after two successive attempts.
- 9.5 Grades that may be shown in the award sheet of a student without any numerical value are N.A (Not Applied) and S.P (Satisfactory Performance) for course(s) extending beyond a semester such as Project Work.
- 9.6 There shall be a Grade Point Average (GPA) calculated for each semester on the basis of grades obtained in that semester. The GPA for the Jth Semester is calculated as :

$$\text{GPA} = \frac{\sum_{i=1}^n m_i o_i}{\sum_{i=1}^n C_i}$$

Where n is the number of course in the Jth semester, m_i denotes the numerical value of the grade obtained in the Jth course of the semester denotes the number of credits for the Jth course of the semester.

Example:

Let us consider the numerical grade and credit of a student given in the table below GPA for Jth semester can be calculated.

Course	Paper I	Paper II	Paper III	Paper IV	Paper V
Credit	5	5	5	5	5
Numerical Grade	7	8	5	7	6

The GPA for the Jth semester is calculated as :

$$\text{GPA} = \frac{7 \times 5 + 8 \times 5 + 5 \times 5 + 7 \times 5}{5+5+5+5} = \frac{135}{20} = 6.75$$

The cumulative Grade Point Average (CGPA) for k semester is given as :

$$\text{CGPA} = \frac{\sum_{j=1}^k (\text{GPA}_j \times C_j)}{\sum_{j=1}^k C_j}$$

where C_j is the total number of credits in the jth Semester.

For example, consider the GPA's obtain by a student in four semester along with total credit in each semester is given as follows.

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Semester	First	Second	Third	Fourth
GPA	6.75	6.00	8.12	7.62
Total Credit	16	20	18	16

$$\text{CGPA} = \frac{(6.75 \times 16) + (6.00 \times 20) + (8.12 \times 18) + (7.62 \times 16)}{16+20+18+16}$$

$$= \frac{108+120+146+16+121.92}{70}$$

$$\text{CGPA} = \frac{496.06}{70} = 7.08$$

- 9.7 The award sheet of the students will show the grades obtained in all the courses offered in each semester, grades/categories without numerical value (if applicable), the GPA and the promotion status.
- 9.8 To be eligible for the award of MCA, students must obtain a minimum final cumulative Grade Point Average (CGPA) of 5.0.
- 9.9 To find percent equivalent to CGPA the following formula may be used; percent = CGPA x 10
- 9.10 Answer books or sheets will be coded before being passed on the examiner and decoded before tabulation work.

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