

ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
MANGALORE UNIVERSITY



(Accredited by NAAC with 'A' Grade)


ಕ್ರಮಾಂಕ/ No. : MU/ACC/CR.15/CBCS(MCA)/2016-17/A2

ಕುಲಸಚಿವರ ಕಛೇರಿ
ಮಂಗಳಗಂಗೋತ್ರಿ - 574 199
Office of the Registrar
Mangalagangothri - 574 199
ದಿನಾಂಕ/Date: 21.07.2017

NOTIFICATION

Sub: Regulation and Syllabus governing Master of Computer Application degree programme.
Ref: 1) Decision of the Academic Council meeting held on 3.02.2017
2) Government letter No. ED 8 UDS 2017, dated 29.06.2017

The Regulation governing Master of Computer Application (MCA) degree programme assented to by the Honorable Chancellor on 14.06.2017 as communicated in Government letter referred to (2) above and the Syllabus thereon approved by the Academic council cited under reference (1) above are hereby notified for implementation with effect from the academic year 2017-18.


REGISTRAR.

To:

- 1) The Chairman, Dept. of Computer Science, Mangalore University.
- 2) The Principals of the Colleges concerned.
- 3) The Registrar (Evaluation), Mangalore University.
- 4) The Assistant Registrar (ACC), Mangalore University.
- 5) The Superintendent (ACC), O/o the Registrar, Mangalore University.
- 6) A4/ A6/ A9 Case Worker (ACC), O/o the Registrar, Mangalore University.
- 7) Guard File.

MANGALORE UNIVERSITY

REGULATIONS GOVERNING THE CHOICE BASED CREDIT SYSTEM (CBCS) FOR THE THREE YEARS (SIX SEMESTERS) POST-GRADUATE DEGREE MASTER OF COMPUTER APPLICATIONS (MCA) PROGRAMME

(Framed under Section 44(1) (c) of the KSU Act 2000)

PREAMBLE:

The University Grants Commission, New Delhi, has directed all Universities in the country to implement the Choice Based Credit System (CBCS, Semester Scheme) in both the under- and post-graduate programmes and has been issuing a series of guidelines with regard to this. The Higher Education Council, Government of Karnataka, has considered the implementation of CBCS and has organized workshops in this regard. The Choice Based Credit System enables the degrees of Mangalore University to be on par with the global standards. Given the present trend of globalization, it is all but fitting that Mangalore University should adopt the CBCS so that the acceptability of the programmes and degrees offered by the University becomes comparable and readily acceptable. The University considered the feasibility of CBCS at several levels and through the meeting of several of its statutory bodies. After the due consideration, thus, the following Regulations were drawn up.

The Salient Features of the Choice Based Credit System (CBCS) (Semester Scheme):

Each course in a programme shall carry certain number of credits, which normally represent the weightage of a course and are a function of teaching, learning and evaluation strategies such as number of contact hours, the course content, teaching methodology, learning expectations, etc. In the proposed programmes, the credits shall be based on the number of instructional hours per week, generally one credit is equivalent to one hour of instruction in theory, or one or two hours of tutorial, or one and a half or two hours of field work practical/ project work / internship per week.

The other features of the CBCS (Semester Scheme) are;

- a) The P. G. degree programme Master of Computer Applications (MCA) is structured on credit based semester scheme.
- b) It is three years programme and the relative importance of subjects of study and activities are quantified in terms of credits. Total credit of the programme is between 126 - 140.
- c) Each programme of study will have “Core” and “Elective” courses. The Core course will further consist of “Hard” and “Soft” core courses. Hard

core courses will have 4-5 credits while Soft core courses will have 3 - 4 credits.

Since Master of Computer Applications (MCA) programme does not coincide with calendar of other PG degree programmes, it is not feasible for students of MCA degree programme to study open electives in other departments. Instead, they will be provided more of soft core courses available for them within the department.

- d) The declaration of result is based on the Grade Point Average (GPA) earned towards the end of each semester and the Cumulative Grade Point Average (CGPA) earned towards the end of the programme with corresponding alpha – sign grade.

1. TITLE AND COMMENCEMENT:

These regulations shall be called “The Regulations Governing the Choice Based Credit System (CBCS) for the Three Years (SIX Semesters) Post Graduate Degree Programme Master of Computer Applications (MCA)”.

2. DEFINITIONS:

- i) **Programme:** An educational programme leading to award of a Post Graduate Degree.
- ii) **Semester:** Each semester will consist of minimum of 16 weeks of academic work equivalent to 90 days of actual teaching / instruction days. The odd semester is ordinarily scheduled from July to December and even semester from January to June.
- iii) **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week.
- iv) **Course:** A unit of study (earlier called a “paper”) within a subject carrying a fixed number of credits.
- v) **Core Course** is related to the discipline of the programme. This is further divide into:
- Hard Core:** These courses are compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
- Soft Core or Elective Course:** These courses are electives and related to the discipline of the programme.
- vi) **Tutorial:** A period of teaching that involves discussion between an individual student or a small group of students and a teacher.

- vii) **Credit Point:** It is the product of grade point and number of credits for a course.
- viii) **Alpha-Sign Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters and a sign + i.e., OO, OA+, AB, AB+, CC etc to indicate semester grades and O, A, B+, B, and C. to indicate programme grades.
- ix) **Grade Point:** It is a numerical weight allotted to each alpha-sign grade on a 10-point scale.

3. PROGRAMME:

3.1 FACULTY OF SCIENCE

i) MASTER OF COMPUTER APPLICATIONS (M.C.A)

4. ELIGIBILITY FOR ADMISSION

Candidates shall have passed the Bachelor Degree examinations with not less than 50% marks in aggregate of all the years of the Degree examination. However, in the case of candidates belonging to SC/ST/Category-I, the aggregate percentage of marks of all the years of the qualifying examination shall not be less than 45%.

Provided that the candidates shall have passed Bachelor Degree with not less than 50% marks with Mathematics/Statistics/Computer Science/Computer Applications/Computer Programming/ Business Mathematics / Business Statistics as one of the optional/elective subject. However, in the case of candidates belonging to SC/ST/Category-I, the percentage of marks shall not be less than 45%.

Provided further that in respect of candidates who have studied and passed one of the subjects specified in the first proviso in the Pre-University Course with 50% marks in that subject shall also be considered for admission. However, in the case of candidates belonging to SC/ST/Category-I, 45% marks in that subject shall be considered for admission.

5. The selection and the eligibility criteria determined by the Government of Karnataka from time to time shall be followed for state level selection.

Entrance Test may be exempted whenever number of applications is less than intake prescribed for programs in which admissions are done through Entrance Test.

6. DURATION:

The duration of Master Computer Application Programme (MCA) shall extend over 6 semesters each of a minimum of 16 weeks (90 actual working days) of instruction and 2 to 4 weeks for preparation and examination.

7. MAXIMUM PERIOD FOR THE COMPLETION OF THE COURSE:

Maximum period for completing the six semester M.C.A. Programme shall be SIX years from the date of admission.

8. MEDIUM OF INSTRUCTION:

The medium of instruction shall be English/Kannada.

9. ATTENDANCE:

The candidate shall be considered to have undergone a prescribed course of study if he/she attended a minimum of 75% of the total instruction hours in a paper (theory/practical) including tutorials and seminars in each semester. Each paper (theory/practical) shall be treated as an independent unit for the purpose of attendance.

There shall be no provision for condonation of shortage of attendance and a student who fails to secure 75% attendance in a paper shall be required to repeat that semester.

10 COURSE PATTERN:

The course of study shall be for a period of 3 years spread over 6 semesters, each of the first to five semesters shall be of 4 months duration and the sixth semester shall be of 6 months duration as the students are required to undertake project works at Software Industry/ R&D organization/University. There shall be University examination at the end of each semester. The course pattern and the scheme of examination are as follows

- 10.1 MCA programme will comprise “core” and “elective” courses. The “Core course” will further consist of “hard” and “soft” core courses. Hard core courses can have 4-5 credits. Soft core courses can have 3-4 credits. Total credit of the programme is between 126 to 140.
- 10.2 Core course is related to the discipline of the programme. This is further divided into Hard Core and Soft Core. Hard core courses are compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study. Soft Core courses are elective but related to the discipline of the programme.
- 10.3 Out of the total of 126 - 140 credits of the programme, the hard core will make up 50% - 70% of the total credits, soft core 30% - 45%.
- 10.4 A credit is 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 (i) one hour of teaching per week, (ii) two or one hour per week of tutorial, and (iii) two hours or one and half hours of practical work/field work per week. Exact hours per credit is stipulated by the Board of Studies (BOS) depending on intensity and effectiveness of field work and tutorial.
- 10.5 All courses need not carry the same weight (credit). 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.

- 10.6 In the case of subjects with practical there shall be minimum of 16 credits of practical in the programme.
- 10.7 A Project Work is a course that is to be taken up in the Fifth/or Sixth semester. However, credit for the project work is counted for the fourth semester only. A project work could be a full Sixth Semester project work is compulsory every MCA programme. Normally a project work is a 4 credit course or full semester course. The nature, the quantity and the duration of the project work as well as the number of contact hours per week may be decided by the Board of Studies.
- 10.8 A student can take the courses offered by a department in any semester, provided they are offered by the department in that particular semester and with the permission from the University well in advance. However, certain courses have one or more courses as prerequisites as prescribed by the Board of Studies and such courses can be taken only after studying those prerequisite courses.
- 10.9 The performance of a student in a course is graded and the “grade” is an index of the performance of that student. The overall performance of a student over the whole programme is expressed as Cumulative Grade Point Average (CGPA).
- 10.10 The CGPA of a programme shall be declared on the basis of the total credits that a student secures in hard and soft core courses.
- 10.11 The grade card is not a statement of Marks. However, the printed CGPA card issued by the university shall declare a formula to convert the CGPA to an overall percentage.
- 10.12 A student may take extra courses over and above the prescribed number in a programme. However, the credits so earned in excess shall not be considered in the declaration of the CGPA.
- 10.13 A student can earn credits in soft core courses by doing them in a department other than the one to which he is admitted, provided that such courses are considered as relevant to his discipline by the Board of Studies and provided, further, that the Councils of the departments concerned approve it.

11. THE SCHEME OF EXAMINATION:

There shall be examinations at the end of each semester ordinarily during November/ December for odd semesters and during May/June for even semesters. Each course shall be evaluated with 30% of marks shall be for continuous internal assessment and 70% of the marks for the end-semester examinations.

Semesters	Papers	No of hours per week/ Theory/ Practical	Duration of exam in hrs per Theory/ Practical	Marks		Each Subject	Each Semester	Credits
				I.A	Exam			
I -V	5 Theory Papers*	4	3	30	70	100	500	20
	2 Practical	4	3	30	70	100	200	4
Total							700	

* include Soft elective subjects

SEMESTER	FINAL SEMESTER PROJECT WORK				Credits
VI	Project Dissertation valuation (Average of both Internal & External Guide)	Viva-Voce Exam.	Internal Assessment	TOTAL MARKS	
	200	80	120	400	20

12. CONTINUOUS INTERNAL ASSESSMENT: Marks for internal assessment shall be awarded on the basis of seminars, field work, tests, assignments, project etc. as determined by the Board of Studies in the respective subject. The internal assessment marks shall be notified on the Department / College notice board for information of the students and it shall be communicated to the Registrar (Evaluation) before the commencement of the University examinations, and the Registrar (Evaluation) shall have access to the records of such internal assessment evaluations.

13. REGISTERING FOR THE EXAMINATIONS:

The candidate shall register for all the courses of a semester when he/she appears for the examination of that semester for the first time.

14. VALUATION OF ANSWER SCRIPTS:

Board of Examiners constituted by the University shall consist of a Chairman, internal and external members out of which at least one shall be from the Department/College offering the programme and at least two external members from other universities. The board shall scrutinize the question papers and shall forward for the approval of university.

14.1 THEORY EXAMINATION

The question papers shall be jointly set by external and internal examiners. The internal examiner shall normally be the person who has taught the course and the external examiner shall be in the panel and duly approved by the University. The Chairman of BoE. should get the necessary approval of the University in respect of examiners. The answer script shall be independently valued by both the examiners who had set the question papers. However, in the event of examiner, who had set the paper, being unavailable, the answer scripts may be evaluated by the examiners from among the approved panel of examiners. Both internal and external examiners shall send the marks lists to the Registrar (Evaluation).

The marks awarded to the candidates will be the average of the two marks awarded by the examiners provided that if the difference between the marks awarded is less than 20% of the maximum.

If the difference between two valuations is more than 20% of the maximum marks, the Registrar (Evaluation) shall check the entries and the total marks assigned by the two valuers. If there is any mistake in totaling, it shall be rectified. While checking the total, if it is observed that any one or more of the answers is not valued by one of the valuers, the Registrar (Evaluation) shall advise internal members of the Board of Examiners to value that answer. After receiving the marks, the Registrar (Evaluation) shall make the necessary corrections. Despite all these corrections, if the difference between the two valuations is still more than 20%, the Registrar (Evaluation) shall refer such answer script to the Chairman of the BoE for arranging third valuation by the examiners from among the approved panel of examiners. The average marks of the nearest of two of three valuations shall be final.

14.2 PRACTICAL EXAMINATION

Each practical examination shall be jointly conducted and evaluated by one internal examiner and one external examiner or two external examiners if there are no internal examiners.

14.3 PROJECT WORK:

Project work shall be carried by students either in University/Institution /R and D centre / Software Company. The Internal/external guides and the Chairman of the Department should certify that the project work is a bonafide work of the candidate while submitting the dissertation for final assessment.

14.4 VIVA-VOCE

The guide/ internal and the external examiner will jointly value the project work and require the candidate to defend dissertation in a viva voce. The average marks awarded by examiners shall be the final marks.

14.5 DISSERTATION EVALUATION

An internal guide assigned for a candidate shall evaluate the project progress through presentation/demonstration by the candidate before finalizing the project work and internal assessment marks shall be submitted to the chairman before dissertation submission for evaluation.

Dissertation evaluation shall be done by internal and external examiners/the panel constituted for the viva-voce examination and duly approved by the Registrar (Evaluation) on the recommendation of the Chairman of BoE. Internal guide shall be an internal examiner and an examiner in the panel duly approved by the University/external guide/co guide / shall be an external examiner. In case of external guides from the Software Industry / R&D organization/University, where the students carried their project works during VI semester, to be invited as external examiners, such external examiners shall be approved by the Registrar (Evaluation) before commencement of the dissertation evaluation. The criteria for third valuation are applicable as mentioned in the section 14.1.

15. CHALLENGE VALUATION:

15.1 A Candidate who has appeared for an examination conducted by Mangalore University may apply through the Department / College for Challenge Valuation on payment of the prescribed fee, within 20 days after the publication of the results or 10 days from the date of dispatch of the marks cards by the Registrar (Evaluation) to the department / colleges whichever is later.

15.2 Procedure for challenge valuation shall be as per the guidelines framed by the University from time to time.

16. CLASSIFICATION OF SUCCESSFUL CANDIDATES:

The results of successful candidates at the end of each semester shall be declared in terms of Grade Point Average (GPA) and alpha-sign grade. The results at the end of the programme shall be classified on the basis of the Cumulative Grade Point Average (CGPA) obtained in all the four semesters and the corresponding programme alpha-sign grade.

The Grade Point Average (GPA) in a Semester and the Cumulative Grade Point Average (CGPA) at the end of fourth semester shall be computed as follows:

16.1 Grade Point Average (GPA): The grade points in a course shall be assigned on the basis of actual marks scored (end Semester examination and I.A.) in that course

as per the table given below they have secured a minimum of 35% marks in the end Semester examination. The candidate securing less than 35% marks in the end Semester examination in any unit/ theory/ practicals/ project work/ dissertation/ internship/ seminar shall be declared to have failed in that unit/ theory/ practicals, indicated with FF grade. A student obtaining grade FF or absent will be required to reappear in the examination of that course.

Table 1: Grades (alpha-sign) and Grade Points

Grade	Limits*			Grade point
OO+	95	-	100	10
OO	90	-	94	9.5
OA+	85	-	89	9
OA	80	-	84	8.5
AA+	75	-	79	8
AA	70	-	74	7.5
AB+	65	-	69	7
AB	60	-	64	6.5
BB+	55	-	59	6
BB	50	-	54	5.5
BC	45	-	49	5
CC	40	-	44	4.5
PP	35	-	39	4
FF	0	-	34	0

* Limits are considered after converting the marks out of 100 in that course.

16.2 The Semester Grade Point Accumulation (SGPA) is the ratio of the 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 (except open electives and extra courses) and the sum of the number of credits of all these courses undergone by a student during that semester. It shall be expressed up to two decimal places.

$SGPA (S_i) = \frac{\sum (C_i * G_i)}{\sum C_i}$ where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

Table 2: Calculation of Semester Grade Point Accumulation (SGPA)

Course Code	Credit	Grade awarded	Grade points	Credit Points
C1	4	OA	8.5	34
C2	4	AB+	7.0	28
C2	4	BC	5.0	20
C3	3	OA	8.5	25.5
C4	3	OO+	10.0	30
C5	4	AA	7.5	30
C6	2	PP	4.0	8
C7	4	BC	5.0	20
Total	28			195.5
SGPA	= sum of the credit points/Sum of the credits = 195.5/28=6.9821 ≈ 7			

16.3 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.

CGPA = $\Sigma(C_i \times S_i) / \Sigma C_i$ where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

Table 3: Illustration for CGPA computation

	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI
Credit	20	18	20	24	23	24
SGPA	8.23	7.31	6.95	8.20	7.9	9.0

$$CGPA = \frac{20 \times 8.23 + 18 \times 7.31 + 20 \times 6.95 + 24 \times 8.20 + 23 \times 7.9 + 24 \times 9.0}{129} = \frac{1029.68}{129} =$$

7.9820 ≈ 8.0

16.4 CGPA will not be declared in the case of such candidates who either secure grade FF or absent in any one of the courses including open electives of the programme.

16.5 The alpha-sign grade of a programme is determined based on CGPA as given below

Table 4: Programme Alpha-Sign Grade

Programme Alpha-Sign Grade	CGPA
O+	More than or equal to 9 but less than 10
O	More than or equal to 8 but less than 9
A+	More than or equal to 7 but less than 8
A	More than or equal to 6 but less than 7
B +	More than or equal to 5.5 but less than 6
B	More than or equal to 5 but less than 5.5
C	More than or equal to 4 but less than 5

16.6 GRADE CARD:

Based on the above recommendations on alpha-sign grades, grade points, SGPA, and CGPA, the University shall issue the Grade Card for each semester and a Programme Grade Card indicating the performance in all semesters. The Grade Card may also indicate that the grade points are in 10 point scale.

17. MINIMUM FOR A PASS:

- 17.1 A candidate shall be declared to have passed the PG program if he/she secures at least a CGPA of 4.0 (Course Alpha-Sign Grade C).
- 17.2 The candidates who pass all the semester examinations in the first attempts they are eligible for ranks provided they secure at least a CGPA of 6.0 (at least Alpha-Sign Grade A).
- 17.3 The results of the candidates who have passed the sixth semester examination but not passed the lower semester examinations shall be declared as NCL (Not Completed Lower semester examinations). Such candidates shall be eligible for the degree only after completion of all the lower semester examinations.
- 17.4 A candidate who passes the semester examinations in parts is eligible for only CGPA and Alpha-Sign Grade but not for ranking.
- 17.5 There shall be no minimum in respect of internal assessment and viva-voce marks.
- 17.6 A Candidate who fails in any of the unit/project work/Project Report/ dissertation shall reappear in that unit/project work/Project Report/ dissertation and pass the examination subsequently.

18. CARRY OVER PROVISION:

A candidate who fails in a lower semester examination may go to the higher semester, however,

- a) No candidate shall be permitted to take the fifth semester examination unless he/she passes all the courses of the first semester examination and

- b) No candidate shall be permitted to take the sixth semester examination unless he/she passes all the papers of the first and second semester examinations of first year MCA.

19. REJECTION OF RESULTS:

- 19.1 A candidate who fails in one or more courses of a semester may be permitted to reject the result of the whole examination of that semester. Rejection of result course wise shall not be permitted. A candidate who rejects the results shall appear for the whole examination of that semester in the subsequent schedule of examinations.
- 19.2 Rejection shall be exercised only once in each semester and the rejection once exercised shall not be revoked.
- 19.3 Application for rejection along with payment of the prescribed fee shall be submitted to the Registrar (Evaluation) through the Department/College together with the original statement of marks 45 days in advance of the pertinent semester examination whenever held.
- 19.4 A candidate who rejects the result is eligible for class and not for ranking.

20. IMPROVEMENT OF RESULTS:

- 20.1 A candidate who passes all the courses of a semester may be permitted to improve the result by reappearing for the whole examination of that semester.
- 20.2 The reappearance could be permitted twice during double the period without restricting it to the subsequent examination only. The regulation governing maximum period for completing various Degree/ Diploma programme notified by the University from time to time shall be applicable for improvement of results also.
- 20.3 The student could be permitted to apply for the improvement examination 45 days in advance of the pertinent semester examination whenever held.
- 20.4 If the candidate passes in all the subjects in the reappearance, higher of the two aggregate marks secured by the candidate shall be awarded to the candidate for that semester. In case the candidate fails in the reappearance, candidate shall retain the first appearance result.
- 20.5 A candidate who appears for improvement is eligible for class and not for ranking.

- 21. Internal assessment marks shall be shown separately in the marks card. A candidate who has rejected the result or who, having failed, takes the examination again or who has appeared for improvement shall retain the internal assessment marks already obtained.

22. A candidate who fails in any of the semester examinations may be permitted to take the examinations again at a subsequent appearance as per the syllabus and scheme of examination in vogue at the time the candidate took the examination for the first time.

23. POWER TO REMOVE DIFFICULTIES:

23.1 If any difficulty arises in giving effect to the provisions of these regulations, the Vice-Chancellor may by order make such provisions not inconsistent with the Act, Statutes, Ordinances or other Regulations, as appears to be necessary or expedient to remove the difficulty.

23.2 Every order made under this rule shall be subject to ratification by the appropriate University Authorities.

24. REPEAL AND SAVINGS:

The existing regulations governing Master of Computer Applications (MCA), programme notified vide notification No.MU/ACC/CR74/2004-5/A2 dated 14.02.2007 is hereby repealed. However, it shall continue to be in force for the students who have been admitted to the course before the enforcement of this regulation.

(Assented to by the Chancellor on 14.06.2017 as communicated in Government letter No.ED 8 UDS 2017, dated 29.06.2017)

**Sd/-
REGISTRAR.**