DIRECTION

No. 21/2021 Date : 01/04/2021

Subject : Examinations leading to the Degree of Master in Computer Application (Two Year degree Course.... Semester Pattern) (Choice Based Credit System) in the Faculty of Science & Technology, Direction, 2021.

Whereas, Direction Nos. 33/2010 and 28/2019 regarding the examinations leading to the Degree of Master in Computer Application (Three Year Degree Course.... Semester Pattern) as per Credit Grade System and as per Choice Based Credit System in the then Faculty of Engineering & Technology and Faculty of Science & Technology respectively are in existence in the University,

AND

Whereas, the letter from the Member Secretary, A.I.C.T.E., New Delhi has been received on 3.7.2020 regarding change in the duration of M.C.A. program from Three (3) years to Two (2) years to be implemented from the academic session 2020-2021 and onwards,

AND

Whereas, the Hon'ble Vice-Chancellor has constituted a Committee under the Chairmanship of the Chairman, Board of Studies in Computer Science & Engg. regarding preparation of the schemes of teaching & examinations of Semester I to IV of the Two years Course of Master in Computer Application as per A.I.C.T.E. guidelines to be implemented from the academic session 2020-21 and onwards in phase wise manner,

AND

Whereas, the Committee in its series of on-line meetings held on 7.8.20, 11.8.20 & 28.8.2020 has prepared and recommended the Schemes of teaching & examinations of Semester I to IV of the Two years Master in Computer Application (M.C.A.) Course as per A.I.C.T.E. guidelines to be implemented from the academic session 2020-21 and onwards in phase wise manner,

AND

Whereas, the Faculty of Science & Technology in its meeting held on 8/9/2020 vide Item No. 9 (R-1) has considered and accepted the recommendations of the Committee regarding implementation of the Schemes of teaching & examination of Semester I to IV of the Two years Master in Computer Application (M.C.A.) Course as per A.I.C.T.E. guidelines to be implemented from the academic session 2020-21 and onwards in phase wise manner,

AND

Whereas, the Hon'ble Vice-Chancellor has accepted & acorded approval to the recommendation of the Faculty of Science & Technology under Section 12 (7) of the Maharashtra Public Universities Act, 2016 on behalf of the Academic Council on 21.09.2020 regarding implementation of the Schemes of teaching & examination of Semester I to IV of the Two years Master in Computer Application (M.C.A.) Course as per A.I.C.T.E. guidelines to be implemented from the academic session 2020-21 and onwards in phase wise manner,

AND

Whereas, the Scheme of teaching & examination of Semester I to IV of the Two years Course Master in Computer Application (M.C.A.) are to be implemented from the academic session 2020-21 and onwards in phase wise manner,

AND

Whereas, the Scheme of teaching & examinations and other provisions are required to be regulated by an Ordinance / Regulation,

AND

Whereas, matter of making an Ordinance / Regulation are a time consuming process,

Now, therefore, I, Dr. M. G. Chandekar, Vice-Chancellor of Sant Gadge Baba Amravati University, in exercise of powers conferred upon me, under sub-section (8) of Section 12 of the Maharashtra Public Universities Act, 2016, having issued the following direction:

1. This Direction may be called as "Examinations leading to the Degree of Master in Computer Application (Two Year degree Course.... Semester Pattern) (Choice Based Credit System) in the Faculty of Science & Technology, Direction, 2021.

2. This Direction shall come into force with effect from the date of its issuance.

3. This Direction shall come into force w.e.f. the session :-

   i) First Year M.C.A. Semester I & II for 2020-2021 and

   ii) Second Year M.C.A.Semester III & IV for 2021-2022

4. Subject to the compliance with the provisions of this Direction and other ordinances in force from time to time along with the rules/regulations received from the Govt. of Maharashtra, the following persons shall be eligible for admission to MCA :

(a) The Candidate should be an Indian National,

(b) i) Passed B.C.A. or Bachelor degree in Computer Science Engineering or equivalent degree and obtained at least 50% marks in aggregate (at least 45% in case of candidates of backward class categories Economically weaker sections and Persons with Disability belonging to Maharashtra State,

OR

ii) Passed B.Sc. or B.Com. or B.A. with Mathematics at 10 + 2 Level or at Graduation level and obtained at least 50% marks in aggregate (at least 45% in case of candidates of backward class categories Economically weaker sections and Persons with Disability belonging to Maharashtra State with

(a) Additional Bridge Course as per norms of the University

OR

(b) Shall successfully complete two (2) SWAYAM NPTEL on-line Cerfication Courses on (i) Computer Fundamentals (ii) Programming Language or similar Courses at least (4) weeks each through MOOCs (Massive Open On-line courses) before joining or during the M.C.A. Course as required by the D.T.E.

5. The exemption in the Bridge Course shall be given to the following students :

i) Who have studied Computer Science /Computer Application subjects as one of the subjects at graduation examination.

ii) Who have P.G. Diploma in Computer Science / Computer Application / Information Technology recognized by any Statutory University / Board.

iii) Who have successfully completed and obtained Certificate /s of Online Course/s in the subjects like Computer Fundamentals, Databases, Operating System Programming Language etc. of minimum 60 Hrs. duration from MOOC- SWAYAM / NPTEL.

6. (i) Duration of the course shall be of two (2) academic years.

(ii) The University shall hold the main examination of regular studens of Semester I & III in Winter and Semester III & IV in Summer every year. The supplementary examination of Semester I & III shall be held in Summer and the supplementary examination for Semester II & IV shall be held in Summer every year.

7. For purposes of instruction and examination the student shall study sequentially.

8. The period of academic session / term shall be such as may be notified by the University.

9. The examinations shall be held at such places and on such dates as may be notified by the University.

10. Subject to his/her compliance with the provisions of this Direction and of other Ordinances (Pertaining to Examinations in General) in force from time to time, the applicant for admission, at the end of the course of study of a particular term shall be eligible to appear at it, if,

i) He / She satisfied the condition in the **Table - I** as mentioned below and the provision there-under.

ii) He / She has prosecuted a regular course of study in the University/College affiliated to the University.

iii) He/She has in the opinion of the Head of the Department/Principal shown satisfactory progress in his / her studies.

TABLE – I

Name of Exam	**The student should have passed the examination of**	**The student should have completed the session / term satisfactorily**
1	2	3
First Year MCA Semester - I	The qualifying Examination mentioned in Sr.No.4 above	First Yr. MCA Semester - I
First Year MCA Semester - II	----------	First Yr. MCA Semester I & II
Second Year MCA Semester -III	----------	Second Year MCA Semester - III
Second Year MCA Semester - IV	----------	Second Year MCA Semester III & IV

11. The Scheme of teaching & examination for M.C.A. Course shall be as provided under "**Appendix-A**" appended with this Direction.

12. The norms for Bridge Course and the Scheme of teaching & examination of Bridge Couse for admission to the M.C.A. shall be as provided under "**Appendix-B**" appended with this Direction.

13. Common Instructions for all the Semesters regarding Choice Based Credits (CBC) /Open Electives (OE) are as under :

The Subjects/Modules/Activity to be undertaken by the Student under the Open Electives approved by the Department /Institute. The schedule of approval will be declared by the Department / Institute at the beginning of the Semester (1st July) as per details given below :

One Faculty Member will work as a Coordinator for Open Electives for which 01 Hour of Theory period will be considered as a weekly work load against this work. All Coordinators has to do counseling of respective Open electives, do the Students Registration process and allot them to faculty members (will be working as a mentor). All these electives are internally accessed by respective Coordinators & Guides based on Minimum 03 Class Tests/ Final Objective Test/ Demo/ Report Submission / Certificate issued by competent authority Viva Voce and other methods as decided by the Department / Institute.

The Mentor shall conduct Tutorial Classes for Workload counting purpose, it should be noted that: 01 Tutorial hour is equal to 01 Theory Hour. For Tutorial, Batch of Maximum 20 Students will be considered and the Tutorial Batch should not be comprised of Less than 04 Students.
Coordinator shall take care that the students are not repetitively opting for same type of Electives in every Semester.

Summary of conduction of Choice Based Credits (CBC) /Open Electives (OC) Electives for all Semesters :-

i) Electives Selection Process starts at beginning of the Semester.
ii) Declare the names of Coordinator for Open Electives.
iii) Counseling of Students by Coordinators for selection of Open Elecetives.
iv) Registration of Students by Coordinators under respective Open Electives.
v) Allotment of Registered Students to Mentor from Department.
vi) Guidance/Counseling to Students by Mentor throughout the Semester.
vii) General Counseling by Coordinators over the Semester, whenever required.
viii) Final Assessment of Students by Coordinators & Mentor for Allotment of Final Credits.
ix) Submission of Credits gained by Students to the Head of Department from Coordinators.

14. i) The scope of the M.C.A. Course is as indicated in the syllabus.

ii) The scope of Bridge Course for admission to M.C.A. Course is as indicated in the syllabus.

15. The medium of instruction and examination of M.C.A. and Bridge Course shall be English.

16. The fees for each M.C.A. Examinations (Theory & Practical) shall be as prescribed by the University from time to time.

17. The computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) of an examinee shall be as given below :-

The marks will be given in all examinations which will include college assessment marks and the total marks for each Theory / Practical shall be converted into Grades as per **Table II**.

SGPA shall be calculated based on Grade Points corresponding to Grade as given in Table II and the Credits allotted to respective Theory / Practical shown in the scheme for respective semester. SGPA shall be computed for First Year (Semester I & II) and Second Year (Semester III & IV) and CGPA shall be computed in Second Year (Semester IV) based on SGPAs of First Year (Semester I & II) and Second Year (Semester III & IV) :-

$$SGPA = \frac{C_1xG_1+C_2xG_2+.....+C_nxG_n}{C_1+C_2+..... +C_n}$$

Where C_1 = Credit of individual Theory / Practial

G_1 = Corresponding Grade Point obtained in the respective Theory / Practical

$$CGPA = \frac{(SGPA)_{sem\ 1}\ x\ (Cr)_{sem\ 1} + (SGPA)_{sem\ 2}\ x\ (Cr)_{sem\ 2} + (SGPA)_{sem3}\ x\ (Cr)_{sem3} + (SGPA)_{sem4}\ x(Cr)_{sem4}}{(Cr)_{sem1} + (Cr)_{sem2} + (Cr)_{sem3} + (Cr)_{sem4}}$$

Where, $(SGPA)_{sem\ 1\ to\ sem\ 4}$ = SGPA of First Year Semester I & II to Second Year Semester III & IV

$(Cr)_{sem\ 1\ to\ sem\ 4}$ = Total Credits for First Year Semester I & II to Second Year Semester III & IV

CGPA equal to 6.00 and above shall be considered as equivalent to
First Class which shall be mentioned on Grade Card of Second Year Semester III & IV as a foot note.

TABLE II

THEORY

Grade	Percentage of Marks	Grade Points
AA	80 ≤ Marks ≤ 100	10
AB	70 ≤ Marks < 80	9
BB	60 ≤ Marks < 70	8
BC	55 ≤ Marks < 60	7
CC	50 ≤ Marks < 55	6
CD	45 ≤ Marks < 50	5
DD	40 ≤ Marks < 45	4
FF	00 ≤ Marks < 40	0
ZZ	Absent in Examination	—

PRACTICAL

Grade	Percentage of Marks	Grade Points
AA	85 ≤ Marks ≤ 100	10
AB	80 ≤ Marks < 85	9
BB	75 ≤ Marks < 80	8
BC	70 ≤ Marks < 75	7
CC	65 ≤ Marks < 70	6
CD	60 ≤ Marks < 65	5
DD	50 ≤ Marks < 60	4
FF	00 ≤ Marks < 50	0
ZZ	Absent in Examination	—

18. Provisions of Ordinance No.18 of 2001 in respect of an Ordinance to provide grace marks for passing in a Head of passing and improvement of Division (Higher Class) and getting distinction in the subject and condonation of deficiency of marks in a subject in all the faculties prescribed by the **Direction No. 15 of 2017** and Ordinance No. 18 of 2001 shall apply to each examination under this Direction.

19. An examinee who does not pass or who fails to present himself/ herself for the examination shall be eligible for readmission to the same examination, on payment of fresh fees and such other fees as may be prescribed.

20. As soon as possible after the examination, the Board of Examinations shall publish a result of the examinees. The result of final MCA Examination shall be classified as above and meritlist shall be notified as per Ordinance No.6.

21. Notwithstanding anything to the contrary in this Direction, no person shall be admitted to an examination under this Direction, if he/she has already passed the same examination or an equivalent examination of any statutory University.

22. The Institute shall prepare the certificate of Bridge Course of every successful student in the presceribed format as **'Appendix - C'** appended to this Direction, submit the same along with the examination report and the tabulation record to the University. On receipt of the examination report and the tabulation record, the University shall verify the results as per the procedure laid down in this regard and issue the certificate to the student.

23. (i) The examinees who have passed in all the subjects prescribed for all the examinations shall be eligible for award of the Degree of Master in Computer Application.

(ii) An examinee successful at the examination shall on payment of prescribed fees receive a degree in prescribed form signed by the Vice-Chancellor.

24. The existing Direction Nos. 33 / 2010 & 28 / 2019 regarding examinations leading to the Degree of Master in Computer Application (Three Year Degree Course.... Semester Pattern) as per Credit Grade System in the Faculty of Science & Technology, Direction, 2019 shall be repealed in phase wise and stage wise manner.

Sd/-
(Dr.M.G.Chandekar)
Vice-Chancellor

Date : 31 /03/2021

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Appendix - A

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI

Two Year MCA

Curriculum Scheme for First Year MCA

Sr.No	Course Category	Subject Code	Subject	Credit	Teaching Scheme			Hours /Week	Examination Scheme									
									Theory					Practical				
					LECTURES	TUTORIAL	PRACTICAL		Duration of Paper(Hrs)	Max Marks Theory Papers	Max Marks Sessional	Total	Min Pass Marks	Duration of Exam (Hrs)	External Marks	Sessional Marks	Total	Min Pass Marks
Semester-I																		
1	Core	MCA20101	Advanced Computer Architecture	3	3		-	3	3	80	20	100	40	-	-	-	-	-
2	Core	MCA20102	Data Structure & Algorithms	4	4		-	4	3	80	20	100	40	-	-	-	-	-
3	Core	MCA20103	Operating System	4	4		-	4	3	80	20	100	40	-	-	-	-	-
4	Core	MCA20104	Data Communication & Networks	4	4		-	4	3	80	20	100	40	-	-	-	-	-
5	Core	MCA20105	Mathematics & Statistical Techniques	4	4		-	4	3	80	20	100	40	-	-	-	-	-
6	Choice based	MCA20106	Open Elective 1	2		2	-	2								50	50	25
7	Skill	MCA20107	Lab1- Object Oriented Programming in JAVA	3	-	2	2	4						3	25	25	50	25
8	Skill	MCA20108	Lab2- Data Structure and Algorithms	1	-	-	2	2	-	-	-	-	-	3	25	25	50	25
9	Skill	MCA20109	Lab3- Operating System	1	-	-	2	2	-	-	-	-	-	3	25	25	50	25
10	Skill	MCA20110	Lab4-Mathematics & Statistical Techniques	1			2	2						3	25	25	50	25
			Total	**27**	**19**	**4**	**8**	**31**		**400**	**100**	**500**			**100**	**150**	**250**	
Semester-II																		
1	Core	MCA20201	Client Server Computing	4	4		-	4	3	80	20	100	40	-	-	-	-	-
2	Core	MCA20202	Artificial Intelligence &Applications	4	4		-	4	3	80	20	100	40	-	-	-	-	-
3	Core	MCA20203	Advance Data Base Management Systems	4	4		-	4	3	80	20	100	40	-	-	-	-	-
4	Core	MCA20204	Software Engineering	4	4		-	4	3	80	20	100	40					
5	Elective	MCA20205	Elective 1	4	4		-	4	3	80	20	100	40	-	-	-	-	-
6	Choice Based	MCA20206	Open Elective 2	2		2	-	2							-	50	50	25
7	Skill	MCA20207	Lab 5-Client Server Computing	1	-	-	2	2	-	-	-	-	-	3	25	25	50	25
8	Skill	MCA20208	Lab 6-Artificial Intelligence &Applications	1	-	-	2	2	-	-	-	-	-	3	25	25	50	25
9	Skill	MCA20209	Lab 7- Elective- 1	1	-		2	2	-	-	-	-	-	3	25	25	50	25
10	Skill	MCA20210	Lab 8- Mini Project	1	-	-	2	2						3	25	25	50	25
			Total	**26**	**20**	**2**	**8**	**30**		**400**	**100**	**500**			**100**	**150**	**250**	

Elective-1
i) Computer Graphics
ii) Data Security
iii) Optimization Techniques

Mini project - the students needs to complete at the end of the semester in order to strengthen the understanding of fundamentals through effective application of the courses learnt.

Open Elective: Each student shall complete 2 credits

The Open Elective and Credit Assigned (Open Elective 1, 2)	Credits
Successful completion of Online Course of 4 weeks	2
Project Acivity	2
Paper/poster presentation	1
Completion of softskill programme of one week	1
Internship of 30 Hrs	2
Field Visit of 15 Hrs	1
Startup recognized and approved by the department	2
Participation in Unnat Bharat Abhiyan 1 for 3 days, maximum 2	1
Yoga Meditation camp of 3 days	1
Completion of course/activity of similar credits proposed by the department from among the available courses/activities from other department/faculty in the college/university	2

Curriculum Scheme for Second Year MCA

Sr.No	Course Category	Subject Code No.	Subject	Credit	Teaching Scheme				Examination Scheme									
					LECTURES	TUTORIALS	PRACTICALS	Hours /Week	Theory					Practical				
									Duration of Paper(Hrs)	Max Marks Theory Papers	Max Marks Sessional	Total	Min Pass Marks	Duration of Exam (Hrs)	External Marks	Sessional Marks	Total	Min Pass Marks
Semester-III																		
1	Core	MCA20301	Data Analytics	4	4		-	4	3	80	20	100	40	-	-	-	-	-
2	Core	MCA20302	Cloud Computing	4	4		-	4	3	80	20	100	40	-	-	-	-	-
3	Core	MCA20303	Web Technology	4	4		-	4	3	80	20	100	40	-	-	-	-	-
4	Elective	MCA20304	Elective 2	4	4			4	3	80	20	100	40					
5	Elective	MCA20305	Elective 3	4	4			4	3	80	20	100	40		-			
6	Choice Based	MCA20306	Open Elective3	2		2		2							-	50	50	25
7	Skill	MCA20307	Lab 7 Data Analytics using Python/R language	1	-		2	2	-	-	-	-	-	3	25	25	50	25
8	Skill	MCA20308	Lab 8 Web Technology	1	-		2	2	-	-	-	-	-	3	25	25	50	25
9	Skill	MCA20309	Lab 9 Elective 2	1	-		2	2	-	-	-	-	-	3	25	25	50	25
10	Project	MCA20310	Lab10 Elective 3	1			2	2						3	25	25	50	25
			Total	**26**	**20**	**2**	**8**	**30**		**400**	**100**	**500**			**100**	**150**	**250**	
Semester-IV																		
1	Skill	MCA20401	Industry Project and Internship/Startup	18	-		-	24	-	-	-	-	-	3	200	50	250	125
2	Skill	MCA20402	Seminar	6	-		0	6	-	-	-	-	-			50	50	25
3	Online	MCA20403	Online Subject	2	2			2								50	50	25
			Total	**26**	**2**		**0**	**32**							**200**	**150**	**350**	

Elective-2	**Elective-3**	**Online Subject**
i) Animation & Movie Making	i) Software Testing	i) Management Information System
ii) Cyber Security & Digital Forensic	ii) Mobile Application Development	ii) Entrepreneurship Development
iii) Block Chain Technology	iii) Internet of Things	iii) Enterprise Resource Planning
	iv) Soft Computing	iv) Research Methodology

Online Subject - Department may choose any of the specified subject and conduct it in online mode

Appendix – B

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI

Norms & the Scheme of Teaching & Examination of Bridge Course for MCA Admission

Preface: As per the new norms of MCA published by AICTE, New Delhi in the Approval Process Handbook 2020-21, the MCA course is now of Two Years Full Time duration. The eligibility criteria for MCA is "Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree. OR Passed B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (with additional bridge Courses as per the norms of the concerned University)". Also, the qualification mentioned in the Gazette of Government of Maharashtra Extraordinary No. 235 published on dated 8/10/2020 endorsed the same as prescribed by AICTE. It is therefore expedient to frame the policy for the 'Bridge Course' to facilitate the students who Passed B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level, to take admission to MCA.

Recommendations of the Board of Studies:

The Bridge course is for bridging the gap of knowledge requires to take MCA programme by those students who have not learnt computer science until completing the graduation degree. The bridge course described below is exempted for the following students:

a) Students who have studied computer science/computer applications subject as one of the subjects at graduation examination.

b) Students who have passed P. G. Diploma in Computer Science/Computer Applications/Information Technology recognized by any University/ Board.

c) Student who have successfully completed and obtained certificate/s of online course/s in the subjects like computer fundamentals, databases, operating system, programming language etc., of minimum 60 Hrs. duration from MOOC - SWAYAM/ NPTEL.

About Bridge Course :

1. The course shall be named as 'Computer Proficiency Bridge Course for MCA Admission'.
2. Duration: 60 Hrs. (02 Credits).
3. Course Contents:

Subject 1 : Computer Fundamentals **45 Hrs.**

1. Introduction to Computers and Programming Methodology – 15 Hrs.
2. Introduction to Data Base Management System – 10 Hrs.
3. Programming in 'C' – 20 Hrs.

Subject 2 : Need Based Technology **15 Hrs.**

The contents of this course shall be prepared by the center at the start of the session and declared by notification to the participants and inform to the University along with the list of admitted students.
Note: University shall prepare and provide detail syllabus for subject 1, covering prescribed course contents.

4. Admission Process: Student shall take admission at any Institute running MCA programme in the jurisdiction of SGB Amravati University, Amravati. The Fees for this course shall be as approved by the S.G. B. Amravati University. The Institute shall publish the admission notification in News Paper and on Institute Website whenever wants to run the bridge course. Institute shall submit the list of admitted students to the University well in advance prior to start of the course. Maximum two batches shall be allowed to each Institute in one academic year.

5. **Examination:** Institute will plan and make arrangement for the examination at the end of the course. Prepare and notify the timetable, take examination of the students and submit complete report of examination to the University. Report should contain timetable of examination, students list, and attendance record of the students for examination, marks details and result etc. Institute shall issue the completion certificate to successful students. Marks for passing examination shall be minimum 40%.

6. Scheme of Examination:

Paper	Contents	Duration	Max Marks	Sessional Marks	Minimum Marks	Paper Pattern
Computer Fundamentals	Introduction to Computers and Programming Methodology Introduction to Data Base Management System Programming in 'C'	3 Hr.	100	--	40	Five questions with internal choice. 20 Marks each.
Need Based Technology	Based on contents Designed by Center	2 Hr.	--	50	20	Five questions with internal choice. 10 Marks each.
Practical-1	Programming in 'C'	3 Hr.	--	25	10	One Practical
Practical-2	Based on Need Based Technology	3 Hr.	--	25	10	One Practical

7. **Certification:** The Institute shall prepare the certificate of every successful student; submit the same along with Examination Report and Tabulation Record to the University. Responsible university authority shall verify the result and duly sign the certificates of the students.

****

Appendix – C

Sant Gadge Baba Amravati University , Amravati.

This certificate is awarded to

_____

on successful completion of

"Bridge Course for MCA Admission "

from **<** *Name of the Institute* **>**

with a consolidated score of _____ % .

Signature 1 (Head of the Institute) *Signature 2(University Authority)*