

**MAHATMA GANDHI UNIVERSITY  
KOTTAYAM, KERALA**

**MASTER OF COMPUTER APPLICATIONS  
REGULAR [3 YEARS]**

**REGULATIONS&SCHEME  
For  
AFFILIATED COLLEGES**

**(From 2017 admission onwards)**

## 1. Eligibility Conditions

### *Qualifications*

- i) A candidate seeking admission to MCA course must have

*A pass with not less than 50% marks in any recognized regular bachelor's Degree course of minimum three years duration in any discipline with Mathematics at 10+2 level.*

OR

*A pass with not less than 50% marks in any recognized Regular Bachelors Degree course of minimum three years duration in any discipline with Mathematics/Statistics/Business Mathematics/ Business Statistics as one of the Subjects.*

OR

*A pass with not less than 50% marks in BCA/BSc Computer Science/ BSc Information Technology/ B.Techdegree of a minimum three years duration from a recognized University.*

- ii) Subject to the regulation relating to prescribed minimum of the respective qualifying examination, the minimum marks of admission to the course of studies shall be a pass in the case of SC/ST candidates.
- iii) Candidates belonging to Socially and Educationally Backward Classes (SEBC) referred to GO(P)208/66/Edn dated 2-5-96 and subsequent amendments to orders issued by the Government and University shall be given a relaxation of 3% marks in the prescribed minimum for admission.
- iv) A relaxation of 5% marks from the prescribed minimum shall be allowed in the case of OEC Candidates.
- v) A relaxation of 5% marks from the prescribed minimum shall be allowed in the case of physically handicapped persons.
- vi) Candidates who have passed the qualifying examination in more than one chance in the subject (excluding languages) will have their percentage marks de-rated at the rate of 5% for every additional appearance for the purpose of ranking.

Candidates with such degrees awarded by the Mahatma Gandhi University or any other degree recognized as equivalent to degrees in(i)by the Mahatma Gandhi University also are eligible to apply.

Reservation of seats shall be as per rules prescribed in the relevant rules by the Directorate of Technical Education, Government of Kerala from time to time.

## **2. Duration of the Course**

The course shall extend over a period of three academic years consisting of six semesters.

## **3. Requirements of attendance and progress**

A candidate will be deemed to have completed the course of any semester only if a) **He/She has put in not less than 75% of attendance,** b) **His/Her progress and conduct have been satisfactory.**

## **4. Procedure for completing the Course**

- i. The academic year will be divided into two semesters, the odd semester normally commencing at the beginning of the academic year and even semester ending with the academic year.
- ii. The Course work in the subjects of study of the odd semesters will ordinarily be conducted only in odd semesters and that of even semesters only in even semesters.
- iii. A candidate may proceed to the course of study of any semester if and only if he has completed the course in the previous semester and has registered for the examination of the previous semester.
- iv. A candidate who is required to repeat the course of any semester for want of attendance / progress or who desires to rejoin the semester after a period of discontinuance or who upon his own request is specially permitted to repeat the semester in order to improve his performance, may be permitted to join the semester for which he is eligible or permitted to join.

## **5. Assessment**

- i) The assessment will comprise of sessional assessment and university examination in certain subjects, and wholly sessional assessments in others, carrying marks as specified in the subject of study and scheme of assessment.
- ii) A candidate shall be declared to have passed in any subject in full in any semester if he/she secures not less than 50% marks in sessional, not less than 40% marks in the University examination including project and viva and not less than 50% of the over all aggregate marks for the subject i.e., university examination marks and sessional marks of the subjects put together.
- iii) A student may be given the option to improve the marks obtained in theory subjects of any semester (except the sixth semester) by canceling all the theory examinations of the semester. There will be no provision to improve the sessional marks of any semester unless he repeats the semester.
- vi) University examinations will be conducted at the end of each semester for subjects offered during the semester.
- v) Semester examinations will normally be conducted in October/November and in April/May of each year.
- vi) All Sessional work shall be valued and marks awarded on the basis of day to day performance, periodic tests and assignments. The allocation of sessional marks for individual subjects shall be on the following basis.

<b>Theory Subjects</b>		<b>Practicals</b>	
Attendance	10%	Attendance	10%
Assignments /Seminar	30%	Regular class work / Lab record / Class Performance	50%
Tests	60%	Tests	40%
Total	100%	Total	100%

The sessional marks allotted for attendance shall be awarded in direct proportion to the percentage of attendance secured by the candidate in the subject. **However, full sessional marks for attendance shall be awarded to those who are securing 80% of the attendance and above only.**

## **6. Normalization of Sessional Marks**

For the MCA course, the maximum internal marks(awarded internally) and external marks(awarded by external examiner appointed by the university) for all theory/practical papers shall be 25 and 75 respectively, except for the following papers - MCA108, MCA 407, MCA508.

To enforce uniformity in the awarding of internal marks by all institutions, there is a need to stipulate rules for normalizing the marks so that the abnormal and unjust variations in sessional marks are controlled to a reasonable extent.

For MCA 108, MCA 407 and MCA 508, having only sessional assessment, the Head of the Institution should ensure that the class average does not exceed 80%. For the remaining papers the following normalization method shall be implemented by the University.

### **Normalization Method**

The maximum percentage of internal marks of a candidate shall be limited to 40% above that of external marks secured by the candidate.

In the case of a candidate who fails to get the pass minimum or absent for external examination for a paper, the normalized internal marks shall be computed only when he/she gets through the new external examination and the internal marks will be computed as per the new external marks.

### **Illustration**

<b>Internal</b>	Maximum Marks - 25	Pass Minimum -12.5
<b>External</b>	Maximum Marks - 75	Pass Minimum – 30
	Maximum Marks - 25	Pass Minimum - 10
<b>Overall</b>	Maximum Marks - 100	Pass Minimum -50

<u>Reg. No.</u>	<u>External</u>		<u>Max. % of internal eligible (% of external+40%)</u>	<u>Internal awarded by college</u>	<u>Internal marks after normalization</u>
	Marks awarded out of 75	Percentage			
1	40	53%	93	20	20
2	15(failed)	20%	-	-	-
	30(Next appearance)	40%	80%	22	20(limited to 80%)
3	60	80%	100	21	21
4	Absent	-	-	-	-
	60(Next appearance)	80%	100	18	18

The above shall be computed using software and the normalized internal marks in the last column shall be carried over to the mark list.

## **7. University Exam Question Paper Pattern**

The pattern shall comprise of 2 parts: **PART A** (10x3=30 marks) and **PART B** (5x9=45 marks).

**Part A** shall have 30 marks, in which the student is expected to answer 10 short questions (3 marks each) out of 12 questions **evenly prepared from all the five modules**. These questions can consist of definitions, theoretical concepts, short illustrative examples, block schematics etc.

**Part B** shall have 2 questions from each module, out of which the student has to answer one from each module (9 marks). These can be descriptive type questions, derivations, problems or collection of 2 or more small questions in a topic. This offers 50% choice to the students, yet forces him to study all the five modules.

## **8. Passing requirements/classification of successful candidates**

i) A candidate shall be declared to have passed in any subject if he/she satisfies clause 5(ii) above.

a) If any candidate fails in want of either minimum marks for university examination or minimum marks for overall aggregate for any subject, he/she can appear for the supplementary examination at the ensuing chance only in the failed subjects alone.

b) If any candidate fails in want of minimum marks for *sessional part* alone for any subject, he/she has to write supplementary examination for **both the sessional part and university examination in the ensuing chance only in the failed subjects alone till he gets a pass mark for that subject**. Sessional part of such candidates may be evaluated by the institution, considering

the marks for attendance already obtained, but new assessment should be done for seminar/assignment and tests along with the subsequent batch. The new sessional mark has to be forwarded to the university along with the sessional marks of subsequent batch.

- c) If any candidate fails in **MCA 108, MCA 407 & MCA 508**, having only sessional assessment, he/she has to redo the work for that subject along with the subsequent batch.
- ii) A candidate who successfully completes the course and satisfy all the passing requirements of the six semesters within six academic years of joining the course will be declared to have qualified for the degree. However, in exceptional cases with genuine and convincing reasons, it is the discretion of the syndicate of the University to effect changes in this regard.
- iii) A candidate who qualifies for the degree and secures not less than 75% of the aggregate of total marks of all the six semesters in the **first attempt** in all the subjects shall be declared to have passed the MCA Degree examination in **First Class with Distinction**.
- iv) A candidate who qualifies for the degree and secures not less than 60% of the aggregate of total marks of all the six semesters shall be declared to have passed the MCA Degree examination in **First Class**.
- v) All other successful candidates shall be declared to have passed the MCA Degree examination in **Second Class**.
- vi) Successful candidates who complete the examinations with **Distinction shall be ranked** on the basis of the aggregate of the total marks of all six semesters.

## **9. Revision of Regulations**

The University may from time to time revise, amend or change the regulations, curriculum, scheme of examinations and syllabi. These changes unless specified other wise will have effect from the beginning of the next semester following the notification by the University.

## SCHEME OF THE PROGRAMME

**Coding Structure: T: Theory; P: Practicals S: Seminar D: Dissertation V: VivaVoce**

*Example: MCA101T : MCA (Course) 101 (Paper Code) T(Theory Paper)*

### SEMESTER I

CourseNo.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem.Exam. Marks Max	Total Mark
		Lect	Lab				
MCA101T	Discrete Mathematics and Statistics	4	-	3	25	75	100
MCA102T	Fundamentals of Data Structures	4	-	3	25	75	100
MCA103T	Paradigms of Programming Languages	4	-	3	25	75	100
MCA104T	Digital Systems & Computer Architecture	4	-	3	25	75	100
MCA105T	Problem Solving and Programming in C	4	-	3	25	75	100
MCA106P	C Practicals	-	4	3	25	75	100
MCA107P	Data Structures through C - Practicals	-	4	3	25	75	100
MCA108T	English for Professional Communication	2			50	0	50
	<b>Total</b>	<b>22</b>	<b>8</b>				<b>750</b>

### SEMESTER II

Course No.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem. Exam. Marks Max	Total Mark
		Lect	Lab.				
MCA201T	Optimization Techniques & Numerical Methods	4	-	3	25	75	100
MCA202T	Operating Systems	4	-	3	25	75	100
MCA203T	Database Management Systems	4	-	3	25	75	100
MCA204T	Data Communications & Networks	4	-	3	25	75	100
MCA205T	Web Technologies	4	-	3	25	75	100
MCA206P	DBMS Practicals	-	4	3	25	75	100
MCA207P	Web Technologies Practicals	-	4	3	25	75	100
	<b>Total</b>	<b>20</b>	<b>8</b>				<b>700</b>

### SEMESTER III

Course No.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem. Exam. Marks Max	Total Mark
		Lect	Lab.				
MCA301T	Principles of Management & Accounting	4	-	3	25	75	100
MCA302T	Analysis & Design of Algorithms	4	-	3	25	75	100
MCA303T	Object Oriented Programming through Java	4	-	3	25	75	100
MCA304T	Software Engineering & Project Management	4	-	3	25	75	100
MCA305T	Object Oriented Analysis & Design	4	-	3	25	75	100
MCA306P	PHP Programming Practicals	-	4	3	25	75	100
MCA307P	OOPS through Java Practicals	-	4	3	25	75	100
	<b>Total</b>	<b>20</b>	<b>8</b>				<b>700</b>

### SEMESTER IV

Course No.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem. Exam. Marks Max	Total Mark
		Lect	Lab.				
MCA401T	System Software	4	-	3	25	75	100
MCA402T	Data Mining	4	-	3	25	75	100
MCA403T	TCP/IP Protocols	4	-	3	25	75	100
MCA404T	Linux OS and Shell programming	4	-	3	25	75	100
MCA405E	Elective- I	4		3	25	75	100
MCA406P	Linux OS & Shell programming Practicals	-	4	3	25	75	100
MCA407D	Mini Project-Application Development	-	4	3	100	0	100
	<b>Total</b>	<b>20</b>	<b>8</b>				<b>700</b>



### SEMESTER V

Course No.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem. Exam. Marks Max	Total Mark
		Lect	Lab.				
MCA501T	User Interface Design	4	-	3	25	75	100
MCA502T	Knowledge Management & Business Intelligence	4	-	3	25	75	100
MCA503T	Enterprise Resource Planning	4	-	3	25	75	100
MCA504T	Advanced Java Programming	4	-	3	25	75	100
MCA505E	Elective - II	4	-	3	25	75	100
MCA506P	Advanced Java Programming Practicals	-	4	3	25	75	100
MCA507P	Python Programming - Practicals	-	4	3	25	75	100
MCA508S	Main Seminar – Current Trends	2			50	0	50
	<b>Total</b>	<b>22</b>	<b>8</b>				<b>750</b>

### SEMESTER VI

Course No.	Subject	No. of hours per week		Duration of Exam in hrs	Sessional Marks Max.	Sem. Exam. Marks Max	Total Mark
		Lect	Lab				
MCA601D	Project	-	28	-	150	150	300
MCA602V	Viva-voce	-	-	-		100	100
	<b>Total</b>	<b>-</b>	<b>28</b>				<b>400</b>

### Elective I – Semester 4

1. Microprocessor and Embedded Systems (E41)
2. Big Data Analytics (E42)
3. Cloud and Grid Computing (E43)
4. Social Network Analysis (E44)
5. Cryptography and Computer Security (E45)
6. Soft Computing (E46)

### Elective II – Semester 5

1. Ad-hoc & Sensor Networks (E51)
2. Multimedia Systems (E52)
3. Information Security & E-Commerce (E53)
4. Digital Image Processing (E54)
5. Distributed Computing (E55)
6. Computer Graphics with Open GL (E56)

