M.C.A.
II & III Year

Prospectus No. 121718

संत गाडगे बाबा अमरावती विद्यापीठ

SANT GADGE BABA AMRAVATI UNIVERSITY

(FACULTY OF ENGINEERING & TECHNOLOGY)

PROSPECTUS

Prescribed for

MASTER IN COMPUTER APPLICATION

Second Year Examination 2011-2012 &

Third Year Examination 2012-2013

CREDIT GRADE SYSTEM

2011

(Price Rs. 15/-)

www.sgbau.ac.in

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Amravati University
Amravati- 444 602

4 MCA 9 E Commerce Laboratory: The lab shall be based on the following programming-cum-development assignments:

i. A catalog in XML. ii. Presenting the catalog online. iii. Filling a shopping cart.

iv. Billing & Order confirmation. v. Online catalog upkeep.

vi. Using surveys to know the customers. vii. News on the e-commerce sites.

Text-book for 4MCA 9 labs is:

Bill Brogden & Chris Minnick "Java Developers' Guide to E-Commerce with XML & JSP" (BPB).

4MCA 10 Seminar

The seminar should be based on the recent trends in computing and the applications. Each student should carry out the literature survey through Internet to identify the current trends in computer applications. The survey should culminate into an application that truly reflects the use of computing in that domain. The seminar report should be prepared based on the technical aspects of the application rather than the description of application.

The candidate shall deliver the seminar for minimum fifteen minutes followed by the question answer session. The marks distribution for the seminar shall be as follows:

Seminar Report			Seminar Presentation			
Contents	Format	Topic Coverage	English Communi-cation	Presentation Style	Question Answer Session	Atten-dance in all the seminar sessions
05	05	05	05	05	15	10

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THIRD YEAR

SEMESTER : FIRST

5MCA1 ARTIFICIAL INTELLIGENCE

UNIT I. Introduction to Artificial Intelligence: Overview of Artificial Intelligence. Knowledge : General concept, Introduction to LISP : Syntax and numerical functions. Basic list manipulation function in LISP. Functions, predicates and conditional Input, output and local variables, iteration and recursion. Property list and arrays.

UNIT II. Knowledge representation - I: Syntax and symantics for propositional logic. Syntax and symantics for FOPL. Properties of Wffs. Conversion to clausal form. Inference fuels. The resolution principle, Nondeductive inference methods. Representation using rules.

UNIT III. Knowledge representation - II: Truth maintenance system. Default reasoning and closed world assumption. Predicate completion and circumscription, model and temporal logics. Overview of object oriented systems, object classes messages and methods, simulation examples using OOS program.

UNIT IV. Knowledge organization and manipulation: Preliminary concept, Examples of search problems, Uniformed and blind search. Informed search. Searching AND-OR graphs, structure used in matching. Measures for matching: distance matrices, qualitative measures, similarity measures. Partial matching, Indexing and retrieval technique, Integrating knowledge in memory. Memory organization system.

UNIT V. Knowledge Acquisition : General concept in knowledge acquisition, Learning by induction. Analogical and explanation based learning : Analogical learning and reasoning, Explanation and learning.

UNIT VI. Expert system : Expert system architectures : Introduction, Rules based system architecture. Nonproductive system architecture, Dealing with uncertainty. Knowledge acquisition and validation. Knowledge system building tools.

Text Book:

1. Patterson D.W.; "Artificial Intelligence and Expert Systems", PHI

Reference Books :

1. P.H. Winston, "Artificial Intelligence," Addison- Wesley Publication Company II Edition, 1984.

2. F.Holtz, "LISP-The language of Artificial Intelligence," TAB Books Inc. Blue Rodge Summit. PA17214, 1985.
3. Peter Jackson, "Introduction to expert systems, "Addison-Wesley Publishing Company, 1986.
4. D.W.Rolston, "Principles of Artificial Intelligence and Expert Systems Development," McGraw Hill International Edition, 1988.
5. E.Rich, K.K.Knight, "Artificial Intelligence," Tata McGraw Hill, New Delhi, 1991.

5MCA2 SOFTWARE PROJECT MANAGEMENT

UNIT I. Evolving role of Software. Software crises & myths. Software Engineering. Software process & process models : Linear sequential, prototyping, RAD, Evolutionary Product & Process. Project management concepts : People, Product, Process, Project. WSHH principle, critical practice.

UNIT II. Measures, Metrics & Indicators. Metrics in process & project domains-software measurment, Metrics for software quality, small organization. Software projects Planning : Scope, resources, estimation, decomposition technique, Tools. Software risks : identification, risk projection,refinement & RMMM plan.

UNIT III. Project Scheduling : Concepts. Peoples Efforts. Task set, Task network. Scheduling. EV analysis, Project Plan. Software quality concepts. SQ Assurance, Software reviews, technical reviews, software reliability, ISO 900 L, SQA Plan. SCM process. Version control. SCM standard.

UNIT IV. System engineering : Hierarchy, Business Process & Product engineering : Overviews. Requirement engineering, System modeling. Requirement analysis. Analysis principles. Software prototyping. Specification. Design Process. Design Principles & Concepts. Effective modular design. Design model & documentation.

UNIT V. Software architecture, Data Design, Architectural styles, Requirement mapping. Transform & Transaction mappings. User-interface design : Golden Rule. UTD, Task analysis & modeling, ID activities, Tools, design evaluation. Component level design : Structure programming, Comparison of design notation.

UNIT VI. Software testing fundamentals ; test case design, Whitebox testing. Basis path, control structure-, Blackbox-Testing, & for specialized environments. Strategic approach to S/W testing. Unit testing, integration testing, validation testing,system testing. Debugging. Technical metrics for software.

Textbook :

Pressman Roger. S. : Software Engineering, A Practitioner's Approach TMH.

References :

1. Somerville : Software Engineering (Addison-Wesley) (5/e)
2. Fairly R. : Software Engineering (McGraw Hill)
3. Davis A. : Principles of Software Development (McGraw Hill)
4. Shooman, M.L. : Software Engineering (McGraw-Hill)

5MCA3 SYSTEM ADMINISTRATION AND SECURITY

UNIT I. Introduction to network secrity, passive and active attacks, authentication, integrity, access control, The model of internetwork security, internet standards : the internet society and RFC publications (Request for comments.)

UNIT II. Cryptography : Encryption principles and various algorithms, standardization process, key distribution, public key cryptography and message authentication, digital signature.

UNIT III. Network security applications : Kerberos, X.509 directory authentication services, e-mail security PGP (Pretty Good Privacy) operational description. MIME (Multipurpose Internet Mail Extensions), S MIME (Security/Multipurpose internet mail extensions) functionality.

UNIT IV. IP Security : Overview, IP security architecture, Authentication header, Web Security : Web security requirements, secure socket layer SSL, Transport layer security TLS, Secure electronic transactions TES.

UNIT V. Network Management Security : Basic concepts of SNMP, Network management architecture and protocol architectures, proxies, services, SNMPv1 authentication service, access policy and proxy service, SNMPv2 architecture, message processing and user security model, view based access control.

UNIT VI. System Security : Intruders, Intrusion technologies, password protection, password selection strategies, Intrusion detection, viruses and related threats : Nature of viruses, types, micro viruses and various antivirus approaches. Firewall : Characteristics, types of fire walls, Firewall configuration, Trusted systems, data access control, the concept of the trusted systems.

Text Book :

Network Security Essentials - William Stallings (Pearson Edu. Asia)

Reference Books :

1. Security for Telecommunication and Network management by Moshe Rozenbit (PHI)
2. Internet Security Protocols - Protecting IP Traffic, by Uyless Black (Pearson Edu. Asia)

5MCA4 MANAGEMENT INFORMATION SYSTEMS

UNIT-I MIS concepts, definition, Role, Impact of MIS, MIS and computers, MIS and academics, MIS support to Management, Role and importance of management. MIS and process of management MIS in orgn structure and strategic management business.

UNIT-II Basics of MIS : Decision making, Decision methods, behavioral concepts, organizational decision making, MIS and decision making concepts, Information; concepts and classification, Methods of data and information collection: value of information, organization and information. Human as an information processor. Development of MIS and choice of IT.

UNIT-III Applications of MIS : Applications in manufacturing sector, applications in service sector, Introduction to service, sector, Creating a destructive services, MIS applications in service industries and role of MIS in source industries. DSS: Concepts and philosophy, deterministic systems and knowledge based expert systems. MIS and role of DSS. MIS in Enterprise Management System.

UNIT-IV Technology in MIS : Data processing, Transaction processing, Application processing, Information System processing, TQM of IS. DBMS: Object Oriented Technologies, client Server Arch. And MIS.

UNIT-V MIS and Networks : Network Topology, LAN, Data Communication, ATM Technology, Business Process Reengineering:Introduction BP, Process Model of organization, Value stream model, Delays in BP, Relevance of IT, MIS and BPR.

UNIT-VI MIS and Datawarehouse : Architecture, Design and Justification of datawarehouse, organization. Management and implementation of data -warehousing, E-Business: Models, WWW, E-payment, security in E-business, MIS and E-business.

Text Book :

W. S. Jawadekar : Management Information System (II Edition), (TMH)

Reference Book :

Kenneth C. Landon & J. P. Landon.: Management Information System, 8th Ed. Pearson Education.

5MCA5 ELECTIVE-II

(1) DATA WAREHOUSING AND DATA MINING

UNIT I: Introduction, Data mining, Data mining functions, classification and major issues. Data Preprocessing: Data cleaning, data integration and transformation, data reduction, discretisation & concept hierarchy generation.

UNIT II: Data mining primitives: Data mining primitives, data mining query language. Concept description: concept description, data generalization, Analytical characterization, mining class comparison.

UNIT III : Application and trends in data mining : data mining applications, data mining systems and research prototypes, additional themes on data mining, trends in data mining .

UNIT IV: Data ware house and OLAP Technology for data mining: What is data ware house, multidimensional data model, data ware house architecture, data ware house implementation.

UNIT V: Data Staging: overview, plan effectively, dimension table staging, fact table loads and ware house operations, data quality and cleansing, miscellaneous issues.

UNIT VI: Building end user applications : role of end user application, application specification, end user application development, maintaining and growing data ware house : manage the existing data ware house environment, prepare for growth and evaluation.

Text Books :

1. J. Han and M.Kamber: Data Mining Concepts and Techniques, Elsevier Pub. Indian Reprint, 2004.
2. R. Kimball: The Data Ware House Life Cycle Tool Kit, Wiley Press, John Wiley and Sons ASIA) Pvt. Ltd.

Reference Books :

1. Berson : Data Ware Housing, Data Mining and OLAP, Tata McGraw Hill.
2. Arun K. Pujari : Data Mining Techniques, University Press (Orient Longman)

5MCA5 **ELECTIVE-II**

(2) BIOINFORMATICS

UNIT I: Introduction to Bioinformatics: Branches, Aim, Scope/ Research Areas, Sequence File Formats, Sequence Conversion Tools, Molecular File Formats, Molecular File Formats Conversion.

UNIT II: Biological databases, Classification Schema of Biological Databases, Biological Database Retrieval Systems, Tools and Databases of NCBI, Database Retrieval Tool, Nucleotide Database, Literature Database, Protein Database, Chemical Database, EMBL Nucleotide Sequence Database, Curation , Sequence Analysis Tools, DNA Data Bank of Japan.

UNIT III : Protein Information Resource (PIR) , resources, Data retrieval, Databases, Protein 3D Structure and Classification Databases : Introduction , Data Deposition Tools, Molecular Modeling Database (MMDB), Retrieval of Structural Data from MMDB, Conserved Domain Database (CCD), E-MSD, 3D- genomics, Gene3D, Protein Structural Classification Databases, CATH, SCOP.

UNIT IV : Sequence Alignments, Concepts, Scoring Matrices, PAM, BLOSUM, Alignment of Pairs of Sequences, Alignment Algorithms, Heuristic Methods, Multiple Sequence Alignment (MSA). Gene Prediction Methods, Overview, Computational methods, methods

UNIT V : Protein Structure and Modeling : Introduction , Levels of Protein Structure, Conformation Parameters of Secondary Structure of a Protein, Secondary structure Types, Secondary Structure Prediction, Software of Secondary Structure Prediction, Limitations, Protein Modeling, Homology or Comparative Modelling, Model refinement, Evaluation of the Model, hands on in Comparative Modeling using Swiss-model, Threading or Fold Recognition.

UNIT VI : Bioinformatics in Computer-aided Drug Design : Drug Discovery Process , Structural Bioinformatics in Drug Discovery, SAR and QSAR Techniques in Drug Design, Graph Theory, Molecular Docking, Recent Upcoming, Modeling Dynamics and Simulations, Monte Carlo methods, Molecular Dynamics, Energy Minimization, Leading MD Simulation Packages.

Text Books:

1 . Zhumur Ghosh, Bibekanand Mallick ; Bioinformatics – Principles and Applications – Oxford Higher Education Pub

Reference Books:

1. Hooman H. Rashidi and Lukas K.Buehler: Applications in Biological Science and Medicine , CAC Press 2000
2. David Mount; Bioinformatics. 2000. CSH Publications
3. Stephen Misener, Stephen A. Krawetz; Bioinformatics- Methods and Protocols-Human Press
4. Harshawardhan P.Bal; Bioinformatics – Principles and Applications, TATA MCGRAW-HILL.

5MCA6 Artificial Intelligence Lab.

At least Twelve experiments must be performed which will include at least one experiment on each Unit. Use of LISP/PROLOG is suggested.

5MCA7 SPM Laboratory ; Based on above syllabus, at least one software development project involving all phases of SDLC. The case studies from the textbook and from reference book 3 may be considered as examples.

5MCA8 System Ad and Security Lab.

PRACTICALS : Minimum 8 experiments based on above syllabus.

5MCA9 Mini Project

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THIRD YEAR

SEMESTER : SECOND

6MCA1 PROJECT & DISSERTATION FULL TIME

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APPENDIX-A
THREE YEAR POST GRADUATE DEGREE COURSE IN MASTER IN COMPUTER APPLICATION
SEMESTER PATTERN
CREDIT GRADE SYSTEM
THIRD YEAR SEMESTER-I

Sr.No.	Subject Code		Teaching Scheme					Examination Scheme								
			Hours/Week					Theory				Practical				
			Lecture	Tutorial	P/D	Total Hours/ Week	Credits	Duration of Paper (Hr.)	Max. Marks Theory Paper	Max. Marks College Assessment	Total	Min.Passing Marks	Max.Marks External	Max.Marks Internal	Total	Min. Passing Marks
1	5MCA1	Artificial Intelligence	4	0	0	4	4	3	80	20	100	40	_	_	_	_
2	5MCA2	Software Project Management	4	0	0	4	4	3	80	20	100	40	_	_	_	_
3	5MCA3	System Administration & Security	4	0	0	4	4	3	80	20	100	40	_	_	_	_
4	5MCA4	Management Information System	4	0	0	4	4	3	80	20	100	40	_	_	_	_
5	5MCA5	Elective-II	4	0	0	4	4	3	80	20	100	40	_	_	_	_
6	5MCA6	Artificial Intelligence-Lab.	0	0	2	2	1	_	_	_	_	_	25	25	50	25
7	5MCA7	Software Project Management-Lab.	0	0	2	2	1	_	_	_	_	_	25	25	50	25
8	5MCA8	System Administration & Security-Lab.	0	0	2	2	1	_	_	_	_	_	25	25	50	25
9	5MCA9	Mini Project	0	0	4	4	2	_	_	_	_	_	25	25	50	25
	TOTAL		20	0	10	30	25				500				250	
															TOTAL : 750	

Elective-II : 1) Data Warehousing 2) Bioinformatics

APPENDIX-A
THREE YEAR POST GRADUATE DEGREE COURSE IN MASTER IN COMPUTER APPLICATION
SEMESTER PATTERN
CREDIT GRADE SYSTEM
THIRD YEAR SEMESTER-II

Sr.No.	Subject Code		Teaching Scheme					Examination Scheme								
			Hours/Week					Theory				Practical				
			Lecture	Tutorial	P/D	Total Hours/ Week	Credits	Duration of Paper (Hr.)	Max. Marks Theory Paper	Max. Marks College Assessment	Total	Min.Passing Marks	Max.Marks External	Max.Marks Internal	Total	Min. Passing Marks
1	6MCA1	PROJECT & DISSERTATION	FULL TIME				25	--	_	_	_	_	150	100	250	150

TOTAL : 250

SANT GADGE BABA AMRAVATI UNIVERSITY.

SPECIAL NOTE FOR INFORMATION OF THE STUDENTS

(1) Notwithstanding anything to the contrary, it is notified for general information and guidance of all concerned that a person, who has passed the qualifying examination and is eligible for admission only to the corresponding next higher examination as an ex-student or an external candidate, shall be examined in accordance with the syllabus of such next higher examination in force at the time of such examination in such subjects papers or combination of papers in which students from University Departments or Colleges are to be examined by the University.

(2) Be it known to all the students desirous to take examination/s for which this prospectus has been prescribed should, if found necessary for any other information regarding examinations etc., refer the University Ordinances Booklet the various conditions/provisions pertaining to examination as prescribed in the following Ordinances.

Ordinance No. 1	:	Enrolment of Students.
Ordinance No. 2	:	Admission of Students
Ordinance No. 4	:	National cadet corps
Ordinance No. 6	:	Examinations in General (relevent extracts)
Ordinance No. 18/2001	:	An Ordinance to provide grace marks for passing in a Head of passing and Inprovement of Division (Higher Class) and getting Distinction in the subject and condonation of defficiency of marks in a subject in all the faculties prescribed by the Statute, No.18, Ordinance, 2001.
Ordinance No. 9	:	Conduct of Examinations (relevent extracts)
Ordinance No. 10	:	Providing for Exemptions and Compartments
Ordinance No. 19	:	Admission of Candidates to Degrees.
Ordinance No. 109	:	Recording of a change of name of a University student in the records of the University.
Ordinance No. 6/2008	:	For improvement of Division/Grade.
Ordinance No.19/2001	:	An Ordinance for Central Assessment Programme, Scheme of Evaluation and Moderation of answerbooks and preparation of results of the examinations, conducted by the University, Ordinance 2001.

Dineshkumar Joshi
Registrar
Sant Gadge Baba
Amravati University.

DIRECTION

No. 33/2010 Date : 24/6 /2010

Subject : Examinations leading to the Degree of Master in Computer Application (Three Year Course .... Bi-Annual Pattern .... Credit Grade System)

Whereas the schemes of teaching & examinations of Master in Computer Application course has been accepted by the Academic Council vide Item No. 49 (J) in its meeting held on 28-05-2010 as per the Credit Grade System for its implementation from the Academic Session 2010-2011,

AND

Whereas admissions to the First Year of Master in Computer Application course are to be made in the Academic Session 2010-2011,

AND

Whereas the matter for admission of the students at the examinations is required to be regulated by an Ordinance,

AND

Whereas the schemes of teaching & examinations of I and II Semesters of Master in Computer Application course are to be implemented from the academic session 2010-2011,

AND

Whereas the schemes of teaching & examinations are required to be regulated by the Regulation,

AND

Whereas the process of making an Ordinance and the Regulation is likely to take some time,

AND

Whereas syllabus for I and II Semesters of Master in Computer Application course is to be sent for printing.

Now, therefore, I, Dr.Ku.Kamal Singh, Vice-Chancellor of Sant Gadge Baba Amravati University in exercise of powers confirmed upon me under sub section (8) of Section 14 of the Maharashtra Universities Act, 1994, hereby direct as under :

1. This Direction may be called "Examinations leading to the Degree of Master in Computer Application (Three Year Course .... Bi-Annual Pattern .... Credit Grade System) Direction, 2010.
2. This Direction shall come into force w.e.f. the session :-
   i) 2010-2011 for First Year,
   ii) 2011-2012 for Second Year, and
   iii) 2012-2013 for Third Year
3. Subject to their compliance with the provisions of this Direction and other ordinances in force from time to time, the following person shall be eligible for admission to MCA.
   (a) Graduate in any Discipline with minimum 50% marks and Math upto 10+2 level (5% Relaxation for B.C.)
   (b) A person passing a PGDCS Exam. of Sant Gadge Baba Amravati University, satisfying the condition given in "a" above are eligible to take admission directly at second year of MCA (subject to condition of availability of seats, in total intake capacity) subject to condition that he will pass the subject heads of 1st MCA not covered at PGDCS level.
4. (i) Duration of the course shall be three academic years.
   (ii) Courses of First year MCA, Second year MCA and Third year MCA are divided into two parts every year i.e. part-I and part-II and the University shall held Examination in Winter and in Summer every year for both the Part-I & II.
   (iii) The main Examination of Part-I shall be held in Winter & the Main Examination of Part-II shall be held in Summer every year. The Supplementary examination for Part-I shall be held in Summer and the Supplementary Examination for Part-II shall be held in Winter every year.
5. For purposes of instruction and examination the student shall study sequentially.
6. The period of academic session/term shall be such as may be notified by the University.
7. The Examinations shall be held at such places and on such dates as may be notified by the University.
8. 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 and the provision thereunder.
   ii) He/She was 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.

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 Part-I	The qualifying Examination mentioned in para-3	First Yr. MCA Part-I
First Year MCA Part-II		First Yr. MCA Part-I & II
Second Year MCA Part-I		Second Year MCA Part-I
Second Year MCA Part-II		Second Year MCA Part I & II
Third Year MCA Part - I	Shall have cleared Ist of MCA & qualified for admission to Third Year as per para-4	Third year MCA Part-I
Third Year MCA Part - II		Third Year MCA Part-I & II

9. The schemes of teaching & examinations shall be as provided under "Appendix-A" appended with this Direction.

10. i) The scope of the subject is as indicated in the syllabus.
    ii) The medium of instruction and examination shall be English.

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

12. 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 (Part I & II), Second Year (Part I & II) and Third Year (Part I & II) and CGPA shall be computed in Third Year (Part II) based on SGPAs of First Year (Part I & II), Second Year (Part I & II) and Third Year (Part I & II). :-

$$SGPA = \frac{C_1 \times G_1 + C_2 \times G_2 + \ldots\ldots + C_n \times G_n}{C_1 + C_2 + \ldots\ldots + C_n}$$

Where C_1 = Credit of individual Theory / Practial

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

$$CGPA = \frac{(SGPA)_{\text{First Year Part-I}} \times (Cr)_{\text{First Year Part-I}} + \ldots\ldots + (SGPA)_{\text{Third Year Part-II}} \times (Cr)_{\text{Third Year Part-II}}}{(Cr)_{\text{First Year Part-I}} + \ldots\ldots + (Cr)_{\text{Third Year Part-II}}}$$

Where $(SGPA)_{\text{First Year Part-I to Third Year Part-II}}$ = SGPA of First Year Part-I to Third Year Part-II

$(Cr)_{\text{First Year Part-I to Third Year Part-II}}$ = Total Credits for First Year Part-I to Third Year Part-II

CGPA equal to 6.00 and above shall be considered as equivalent to First Class which shall be mentioned on Grade Card of Third Year Part-II 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	—

13. 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 Statute No.18, Ordinance, 2001 shall apply to each examination under this Direction.

14. 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.

15. 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.

16. 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.

17. 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.

Sd/-
Dr. Kamal Singh
Vice-Chancellor

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