

INFORMATION BROCHURE

Master of Computer Applications(MCA)

2016-2019



**UNIVERSITY DEPARTMENT OF MATHEMATICS
BASIC SCIENCE BUILDING
RANCHI UNIVERSITY, RANCHI**

Morabadi Campus, Ranchi 834008, Jharkhand. (Ph. 0651-6555611)
(Website: www.rumathmca.com)

MESSAGE



The successful journey of the MCA course since its inception in July 2003 is credited to the effort of the students. Their inquisitiveness and zeal for better performance has always been a beacon for the progressive movement of the department.

The department under the aegis of the university has been instrumental in the up gradation and maintaining balance between the industry and academia. The gradual enhancement of the seats is a step towards involvement of many more future aspirants to get them expertise in information technology and its applications.

I am confident, that, the overall active participation of the members of the family of this department will lead to enlighten the future generations for the decades ahead.

Dr. A.K. Mahato
Director, MCA
Ranchi University, Ranchi

RANCHI UNIVERSITY



Ranchi University established on July 12, 1960 is the premier institution of Jharkhand state. It has tread through more than five decades with faculties of Commerce, Humanities, Science, Social Science, Medicine, Education, Engineering and Law.

Besides regular courses Ranchi University also offers Self Financing/Professional courses at PG Level namely MCA, MBA, M.Sc. Electronics & Communication, PG Diploma in medicinal plant & M.Sc. in Bio-Technology, Master in Mass Communication & Journalism , Master in Rural Development, Master in Agro management, Public Administration, Diploma in Human Rights.

The alumni of this University have successfully excelled in every walk of life and had been the torch bearer in the society.

THE DEPARTMENT:

The University Department of Mathematics was established in July 1960 with two years MA/ M.Sc in Mathematics as a regular post graduate course. The team of experienced teachers has been engaged in teaching, research and extra-curricular activities in the campus. The students have excelled in national level competitive examinations and are well established in their respective fields The MCA course was introduced as a vocational course of self-financing status in the department in July 2003. It has been running successfully and the students have good representation in academics and public and private sectors. The M. Phil course has been started in the department from July 2012.

The organization of seminar, conferences and alumni meet at national level is held regularly.

MCA COURSE:

The MCA course is a three year full time post graduation course which is spread over six semesters. Since its inception in July 2003 with thirty seats, there has been a gradual enhancement of the seats to fifty two to seventy two at present. The course curriculum requires rigorous teaching, and consistent learning within the stipulated schedule. The syllabi has been framed, restructured and adapted the technical changes around to produce technology able software professionals for the self sustenance.

Teaching is done through the traditional as well as through the multimedia aids. Seminars by eminent experts, workshops and colloquiums such as industrial visits, mock interviews, presentations on IT related topics and co-curricular activities are organized for overall development. The quality of learning is evaluated through the internal assessments and end semester external examinations.

Attendance: The attendance of the students enrolled to this course is minimum 75% in all the semesters. Those unable to maintain will not be allowed to fill up the examination from.

INFRASTRUCTURE

The MCA Course is running in Institute of Basic Science building which is well consist of sufficient number of classrooms, Lecture Theaters, Seminar Halls and Laboratories.

AUDITORIUM:



There is a well furnished auditorium named as “ARYABHATTA AUDITORIUM” within the premises of Basic Science Building. The seminars, cultural programs and other occasional celebrations are conducted there.

BANKING FACILITY

The Ranchi College Campus branch of Central Bank of India is situated near the campus.

COMPUTER LAB



In this IT dominated world, the department has well enabled computer Lab with LAN facility. The Computer Lab has latest software and the necessary hardware support to synchronize with the IT needs. The Lab has individual Computer facility, with Internet facility.

The systems in LAB are connected through local area network to share, discuss, develop and rectify programs in an interactive manner. Practitioners can directly interact with master computer (with instructor) to solve queries immediately after occurrence. At present the LAB has more than 50 Desktops and three Servers.

LIBRARY



(i) The department has a well stocked MCA library of its own. The departmental library comprises of varied extensive collection of more than 5000 books, journals, research reports and case study materials. Besides, the students have access to the University Central Library.

(ii) The Department has an NBHM (National Board of Higher Mathematics) library consisting more than 3 thousand books for higher research work in field of higher Mathematics and Computer Science.

(iii) The Department also has an UGC (University Grants Commission) library consisting of more than three thousand books for M.sc/MCA level courses.

Seminar Hall is equipped with multimedia teaching aid.



BRIEF COURSE PROFILE OF MCA:

PAPER	SEMESTER I	SEMESTER II	SEMESTER III	SEMESTER IV	SEMESTER V	SEMESTER VI
PAPER 1 st	IT 11: Fundamentals of Computer Science & Applications	IT 21: Data Structure	IT 31: Database Management Systems	IT 41: Computer Networks	IT 51: Artificial Intelligence & Applications	IT61 S: Seminar
PAPER 2 nd	IT 12: Computer Organization Architecture	IT22: Operating Systems	IT 32: Analysis & Design of Computer Algorithm	IT 42: Computer Graphics	IT 52: Network Security & Cryptography	IT62 P: Final Project & Grand viva-voce
PAPER 3 rd	IT 13: Programming Language through C	BM 21: Financial Accounting	IT 33: Object Oriented Programming	IT 4E: Compiler Design	IT 5E: Data ware-housing & Data Mining	
PAPER 4 th	BM 11: Business Communication	MT 21: Numerical and Statistical Methods	BM 31: Enterprise Resource Planning	BM 41: Project Management and Software Engineering	BM 5E: Organizational Behaviour	
PAPER 5 th	MT 11: Discrete Mathematics	LAB IT 21L: Lab based on Programming in Data Structure	MT 31: Automata Theory	BM 4E: e-Commerce	MT 51: Operations Research	
PAPER 6 th	LAB IT11L: Lab based on Computer Fundamentals	LAB IT22L: Lab based on Operating Systems	LAB IT31L: Lab based on Database Management	LAB IT41L: Lab based on Computer Graphics	LAB IT51L: Lab based on Artificial Intelligence	
PAPER 7 th	LAB IT 12L: Lab based on Programming in C	-----	LAB MT31L: Lab based on Programming in JAVA	LAB IT42L: Lab based on Case Tools	LAB MT51L: Lab based on Web Design	
PAPER 8 th					LAB IT51IL: Industrial Lectures	
PAPER 9 th					LAB IT51S: Seminar	
PAPER 10 th					LAB IT51P: Project	

Note:

(1) As per regulation, in order to pass MCA semester examinations, a candidate must clear all the papers in that semester with at least 45% marks in each theory, sessional work and practical examinations, separately.

(2) The students shall be required to clear their first and second semester theory and practical papers before joining fifth semester. If they fail to clear the arrear before the start of fifth semester, they will have to discontinue their studies, clear the papers and rejoin.

FEE STRUCTURE

The Tuition fee is Rs. 20,000/= per semester for General and OBC category students and 15,000/= per semester for ST and SC students. The department provides free ship education to two BPL students. The examination fee is Rs. 800/- per semester.

PLACEMENT CELL

The placement cell of the department is functional under the supervision of University Placement Cell. Placement assistance has been provided to the students since the cell was set up. Campus recruitment of four students by Wipro Technologies, five in Lexicon Consultants Private Limited and three in Techla solutions is done in the current session.

FACULTY MEMBERS:-

1. Dr.A.K. Mahato (Head Mathematics & Director, MCA)
2. Dr. M.M.P. Singh (University Professor)
3. Dr. M.K. Singh (University Professor)
4. Dr.(Mrs.) Smita Dey (Associate Professor, Course Coordinator, MCA)
5. Dr. Sahdeo Mahto (Associate Professor)
6. Dr. C.S.P Lugun (Associate Professor)
7. Miss Swagata Ghosh(Faculty, MCA)
8. Mr. Ashish Mohan (Faculty, MCA)
9. Mr. Abhishek Kant (Faculty, MCA)
10. Miss Nazia Hasan (Faculty, MCA)
11. Mr. Mithilesh Kumar (Faculty, MCA)

SELECTION PROCEDURE

At present there are 72 seats in MCA including 2 seats for BPL category students. Candidates are selected on the basis of:

- (i) Marks scored in all India Centralized Eligibility Test (CET), conducted by R.U. Ranchi.
- (ii) Academic Career Record of the candidate.
- (iii) Interview conducted by the Department

Appropriate reservation policy of state is being followed at the time of finalizing the merit list selection.

SCHEDULE FOR MCA ADMISSION 2016-19

Application Forms available from	02.05.2016
Last date of submission of filled in application form	28.06.2016
Date of CET- 2016	29.06.2016
Dates of Interview	08.07.2016 to 11.07.2016
Tentative date of publication of first list of result	15.07.2016
Tentative date of publication of second list of result	23.07.2016
Commencement of classes	01.08.2016

Centralized Eligibility Test (CET) of Ranchi University, Ranchi.

(For MCA Entrance)

Subjects

The Centralized Eligibility Test (CET) will consist of three sections A, B and C with the following distribution of (equal value) questions.

Section	Subject	No. of Questions
(A)	Computer awareness	40
(B)	Mathematics	40
(C)	Reasoning	20
Total number of Questions:		100

Test Pattern

1. The total time allotted for the answers is three hours.
2. Each question has 4 choices for answer. A candidate has to select the most appropriate choice.
3. Each correct answer will be awarded four marks and each incorrect answer will carry a penalty of one mark. No attempt to a question will carry zero Marks.
4. The question will be uniformly distributed over the entire syllabus in each subject as far as possible.
5. Calculation aids and electronic device (e.g. calculators, and mobile etc. will not be allowed at the Centre of test.
6. If two candidates secure equal total of marks, the candidate securing more marks in Mathematics will be given preference in selection.

Detailed syllabus of the Subjects

Section A Computer Awareness

1. Computer Basic

- a. Number system: Decimal, Binary and Octal numbers. Addition, Subtractions, Multiplication and division of binary numbers, single and two complements.
- b. Organization of computer: Hardware input/ output devices, Central processing Unit (CPU), computer memory , storage devices, types of software.
- c. Boolean Algebra: Boolean variables, operators, Truth tables, De Morgan's Law.

2. The basics of programming in C language:

- a. Variables and expressions, data types, operators and keywords.
- b. Basic input and output statements, condition and iterative statements.
- c. Single and double dimension array, library and user defined functions, Structure.

3. Database Management System

- a. Relational data model: Domain, tuple, primary key, candidate key, foreign key.

b. Relational Algebra: Selection, Projection, Union and Cartesian product.

c. SQL: Data types, Create, Insert, Select and Alter commands.

4. Networking

a. Channel, baud, Bandwidth, Data transfer rates(bps, Kbps, Mbps, Gbps)

b. Network topologies: Bus, Star, Tree.

c. Concept of LAN, MAN AND WAN, www, search engines, telnet.

Section B (Mathematics) (based on plus two level of CBSE)

1. Set Theory

a. Algebra of Sets

b. Cartesian product of sets and binary relations

c. Mapping and binary operations

2. Algebra

a. Elementary algebra: indices, algebra of polynomials, logarithms

b. Quadratic and polynomial equations and inequalities

c. Determinant and matrices including the solution of a system of linear equations

3. Discrete Mathematics

a. Counting principles: Addition and multiplication principles, inclusion exclusion principle

b. Counting arrangements: Counting linear, circular and 3-dimensional arrangements, to count different types of mappings from a given set A to a given set B, counting with conditions on neighbors or ordering of objects.

c. Counting selections: Counting: sets and relations, geometrical objects formed by joining given points or by the intersection of given system of lines, partitions and distributions.

d. Sequence: Properties of a sequence, special sequences A.P., G.P. and H.P.

e. Finite series: Methods of summing finite series. Binomial series and its application in summation of finite series.

- f. Infinite series: Formal methods of summing infinite geometric and binomial series, logarithmic and exponential series.

4. Probability theory

- a. Probability of an event; finite sample space and events, computing probability from combinatorial reasoning.
- b. Conditional probability: independent events and multiplication theorem.
- c. Mutually exclusive and exhaustive events: Theorem on total probability and Bay's theorem.
- d. Discrete distributions: and Poisson's distributions and its mean, median and mode.

5. Basic Statistics

- a. Mean, median and mode of frequency distributions
- b. Dispersion and deviation: mean and standard deviation, coefficient of dispersion and deviations.

6. Co-ordinates Geometry.

- a. Cartesian co-ordinates: distance and section formulas, formula for the area of a triangle.
- b. Equations of one or more straight lines.
- c. Circles: Equations of circle, points and line associated points and lines.
- d. Standard equation of a parabola, ellipse and hyperbola and the equations of points about origin, orthogonal reflection of a point in a line, translation and rotation of axes.
- e. Linear operation on Vectors and their geometric meaning
- f. Scalar and vector products of two and three vectors and their geometric and mechanical applications.

SECTION – C (Reasoning)

1. Quantitative Reasoning

- a. Arithmetic reasoning
 - b. Problem solving
 - c. Data sufficiency
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Specimen questions

147
UCET - 2015

Roll No. Set - C

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For office use only :

Correct number of answer	Marks (A)	Incorrect number of answer	Marks to subtract (B)	Marks obtained (A) - (B)

Time : 3 Hours F. M. : 420

There are 105 multiple choice questions.
(Section A : 45, Section B : 40, Section C : 20 in sequence)

Write A, B, C or D in the box provided against each question for the correct choice. Each correct answer carries 4 marks and each incorrect answer carries a penalty of 1 mark. Use ball pen. Calculators are not allowed.

Section - A (Computer Awareness)

1. An internet utility used for remote log in is :
(A) Telnet (B) Firewall
(C) Cookies (D) Crakers

2. 'C' language is written by :
(A) Dennis Rector (B) Dennis Ritchie
(C) Danial Ritchie (D) None of these

3. What language was the first 'C' compiler written in ?
(A) Quora (B) Quire
(C) Quota (D) None of these

4. In which lab 'C' language is written ?
(A) Bell Labs (B) Dennins Labs
(C) Edu Labs (D) None of these

5. How many layers are in OSI ?
(A) 3 (B) 4
(C) 7 (D) 5

PB - 1C/12 (Turn over)

Documents to be attached with the Application Form :

- a) Self attested copies of Marks sheet, Certificate, Admit Cards and degrees of all examinations commencing from matriculation.
- b) Recent caste & income certificates, BPL Card, if applicable.

Important Note :

Photograph should be attested by a gazetted officer or the Head of the Institution last attended.

.....
Signature of Father/Guardian

.....
Signature of the Applicant

RECEIPT

For Office Use only

C.E.T Form No.

Name _____

Received the dully filled in application form

Date of receiving signature

Important Instructions

1. The Examination Hall will be opened 15 minutes before the time specified for the commencement of the examination. Candidate who is late by more than 15 minutes shall not be admitted.
2. A seat marked with his/her Roll number will be allotted to each candidate will be required to find out and occupy their allotted seats.
3. No candidate, without permission Invigilators shall leave his/her seat or the Examination Hall until the end of the examination. No candidate shall speak without permission. If it is necessary for the candidate to communicate with the Supdt he/she shall stand up in his/her place and the Invigilators will see to his/her requirements.
4. Before beginning his/her paper, he/she shall write his/her Roll No. In the space provided on the first page and no where else in the answer book.
5. On the expiry of time the answer book must be handed over to the Invigilators, even though the candidate may not have answered any part of the paper.
6. Smoking is strictly prohibited at be examination Centre. Candidate found doing so during the course of examination shall be liable to be expelled from Examination Centre.
7. Candidate can be physically searched before or during the courses of examination at any time.
8. In the Examination Hall Mobile phone and Calculator are not allowed.