

Choice Based Credit System (CBCS)

Maharaja Ganga Singh University

B.A./B.Com./B.Sc. Vocational Computer Application

(Semester System)

2023-24

Undergraduate Programme

(Effective from Academic Year 2023-24)



**SYLLABUS
SCHEME OF EXAMINATION AND
COURSES OF STUDY**

Preamble

Considering the curricular reforms as instrumental for desired learning outcomes, Maharaja Ganga Singh University made a rigorous attempt to revise the curriculum of postgraduate and undergraduate programs in alignment with the National Education Policy-2020 and UGC Quality Mandate for Higher Education Institutions. The process of revising the curriculum could be prompted by the adoption of the "Comprehensive Roadmap for Implementation of NEP". The roadmap identified the key features of the Policy and elucidated the Action Plan with well-defined responsibilities and an indicative timeline for major academic reforms. The University Grants Commission (UGC) has devised a series of regulations and directives over time with the intention of enhancing the higher education system's quality and enforcing minimum standards in Higher Educational Institutions (HEIs) throughout India. The recent academic reforms suggested by the UGC have contributed to an overarching enhancement of the higher education system.

With NEP-2020 in background, the revised curricula articulate the spirit of the Policy by emphasizing upon- integrated approach to learning; innovative pedagogies and assessment strategies; multidisciplinary and cross-disciplinary education; creative and critical thinking; ethical and constitutional values through value-based courses; 21st century capabilities across the range of disciplines through life skills, entrepreneurial and professional skills; community and constructive public engagement; social, moral and environmental awareness; exposure to Indian knowledge system, cultural traditions and classical literature through relevant courses offering 'Knowledge of India'; fine blend of modern pedagogies with indigenous and traditional ways of learning; flexibility in course choices; student-centric participatory learning; imaginative and flexible curricular structures to enable creative combination of disciplines for study; offering multiple entry and exit points, integration of extracurricular and curricular aspects; exploring internships with local industry, businesses, artists and crafts persons; closer collaborations between industry and higher education institutions for technical, vocational and science programmes; and formative assessment tools to be aligned with the learning outcomes, capabilities, and dispositions as specified for each course. The University has also developed consensus on adoption of Blended Learning with component of online teaching and face to face classes for each programme.

Choice-Based Credit System (CBCS)

The Choice Based Credit System (CBCS), a part of the academic reform process to enhance the quality of education and facilitate the transferability of students from one University/institution to another at the national and international level, provides substantive autonomy to teachers to formulate their own curricula and enable them to introduce innovations in teaching and learning process and upgrade the overall quality of higher education. The CBCS provides scope for Comprehensive and Continuous Evaluation (CCE) of students and encourages them to learn. The CBCS provides a cafeteria-type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.

The grading system is widely regarded as an improvement over the traditional marks system, which is why leading institutions in India and abroad have adopted it. Thus, there's a strong rationale for establishing a consistent grading system. This would facilitate seamless student mobility among institutions within the country and abroad, while also allowing prospective employers to accurately assess students' performances. To achieve the desired standardization in the grading system and the method for calculating the Cumulative Grade Point Average (CGPA) based on students' examination results, the UGC has devised these comprehensive guidelines.

Outline of Choice Based Credit System

(https://www.ugc.gov.in/pdfnews/8023719_guidelines-for-cbcs.pdf)

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course that can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
 - 2.1 **Discipline-Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline-Specific Elective. The University/Institute may also offer discipline-related Elective courses of an interdisciplinary nature (to be offered by the main discipline/subject of study).
 - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
 - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective. P.S.: A core course offered in a discipline/subject may be treated as an elective by another discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC):** The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement; i. Environmental Science and ii. English/MIL Communication. These are mandatory for all disciplines. SEC courses are value-based and/or skill-based and are aimed at providing hands-on training, competencies, skills, etc.
 - 3.1 Ability Enhancement Compulsory Courses (AECC): Environmental Science, English Communication/MIL Communication.
 - 3.2 Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

4. Research Component in Undergraduate Courses

Project work/Dissertation is considered as a special course involving the application of knowledge in solving / analysing /exploring a real-life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline-specific elective paper.

Structure of Programme

B.A./B.Com./B.Sc. Vocational Computer Applications

Admission Criteria

Admission rules to the course will be as per Government / University policy declared for undergraduate science programs from time to time.

Teaching and Examination Scheme for B.A. / B.Com./B.Sc. Vocational Computer Application Session 2023-24

Semester I										
Paper Code	Paper Name	Code	L	T	P	Total Credits	Maximum Marks		Passing Criteria	
							Internal (I)	External (II)		
VCA4.5AECC T11	(English/Hindi/MIL)	AEC C	2	0	0	2		100		36 Non-CGPA S/NS*
VCA4.5DCCT12	Computer Fundamentals & PC Software Part A	DCC	2	0	0	2	30	40	150	14(36%)
VCA4.5DCCT13	Database Management System Part A	DCC	2	0	0	2		40		14(36%)
VCA4.5DCCP14	Combined Practical	DCC			2	2		40		14(36%)

Semester II										
Paper Code	Paper Name	Code	L	T	P	Total Credits	Maximum Marks		Total Marks	Passing Criteria
							Internal (I)	External (II)		
VCA4.5AECC T21	Environmental Science	AEC C	2	0	0	2		100		36 Non-CGPA S/NS*
VCA4.5DCCT22	Computer Fundamentals & PC Software Part B	DCC	2	0	0	2	30	40	150	14(36%)

VCA4.5DCCP23	Database Management System Part B	DCC	2	0	0	2		40		14(36%)
VCA4.5DCCP14	Combined Practical	DCC	0	0	2	2		40		14(36%)

S/NS*=Satisfactory or Unsatisfactory, ** A candidate shall be required to obtain 36% marks to pass in theory, practical and internals separately.

- For Internal Evaluation of 20 Marks overall (no bifurcation into theory and practical)-please decide your criteria (Suggestive: 05 Marks for theory paper, 05 Marks for practical paper, 05 Marks for assignment/ seminar, and 05 Marks for Logical thinking/application of knowledge and skills)
- Each practical exam is to be conducted by two examiners one External and one Internal. The external examiner should be a senior lecturer from the jurisdiction of MGS University. External Examiner will prepare question paper of Practical Examination. Students have to perform exercises on the computer. Exercise must be written in answer books in proper documentation.
- The bifurcation of 40 marks for Practical paper will be as follows-
 - 3 practical questions 30 marks each
 - Lab File: 5 marks
 - Viva voce: 5 marks

B.A. / B.Com. /B.Sc. Sem-I Examination 2023**Course Code:** VCA4.5DCCT12**Type of the course:** Discipline Specific Core Course I of Semester I**Title of the Course:** Computer Fundamentals & PC Software Part A**Level of the Course:** NHEQF Level 4.5**Credit of the Course:** 4**Delivery sub-type of the course:** Theory 3. Tutorial 1**Pre-requisites and requisites of the course:** Student enrolled and registered in UG Programme first semester.**Duration of Exam:** 3 Hours**Maximum Marks:** 150**Internal Exam:** 30 Marks**Theory Exam:** 80 Marks**Practical Exam:** 40 Marks**Unit – I**

Historical Evolution of Computers, Characteristics of computer, Classification of Computer, Modern Computer & its Application; Block diagram and Components of Computer System, Central Processing Unit, Memory Unit, Microprocessor; Interconnecting the Units of a Computer, Inside a Computer Cabinet

Unit – II

Functions and Characteristics of various commonly used Input/Output Devices; Start-up Process (Booting), Specification of a Desktop and Laptop currently available in the market (Processor, motherboard, memory, interface & capacity of HDD & DVD drives, I/O ports, etc).

Unit - III

Need & Types of Software: System & Application software, Open Source Software. Programming Languages: Machine, Assembly, High Level, 4GLs, Assemblers, Compilers, and Interpreter; Objectives of Operating System, Concept of CUI & GUI; Installation of Windows Operating System. Installation of Printer and Other Software Packages such as MS Office, Libre Office etc; Backup and Restore Operations.

Unit - IV

Features of Windows Operating System; Various versions of Windows, Desktop, Explorer, Searching, Recycle Bin, Setting common devices using Control Panel, System Tools, Disk cleanup, defragmentation, scanning for virus, Windows Accessories.

Unit – V

Features of Word Processor: Create, edit, store, print documents, Navigation of documents, cut, copy & paste, Find & replace, Different Page Views and layouts, Alignment, formatting features, Tabs and indents, Inserting tables, pictures, hyperlinks, Spell checking, Macros, Mail merge, Template, Wizards, Overview of Index and Tables. Importing and exporting to and from various formats.

Suggested Readings:

1. Computer Fundamental By P.K. Sinha (BPB Publications)
2. Upgrading and Repairing PCs By Scott and Mueller, Techmedia, New Delhi
3. Rapidex MS Office By Vikas Gupta (Pustak Mahal)
4. Absolute Beginners Guide to Computer Basics By Miller M, Pearson Education,
5. Fundamentals of Computers By Balagurusamy E, Tata McGraw-Hill

B.A. / B.Com. /B.Sc. Part-I Examination 2023

Paper Code - VCA4.5DCCT21

Database Management System**Course Code:** VCA4.5DCCT13**Type of the course:** Discipline Specific Core Course I of Semester I**Title of the Course:** Database Management System Part A**Level of the Course:** NHEQF Level 4.5**Credit of the Course:** 4**Delivery sub-type of the course:** Theory 3. Tutorial 1**Pre-requisites and requisites of the course:** Student enrolled and registered in UG Programme first semester.**Duration of Exam:** 3 Hours**Maximum Marks:** 150**Internal Exam:** 30 Marks**Theory Exam:** 80 Marks**Practical Exam:** 40 Marks**Objectives of the course: Course Objectives:**

1. To understand the characteristics of computers
2. To know about the generations of computers
3. To have knowledge about computer languages
4. To understand the basics of an operating system
5. To be acquainted with word processor, spreadsheet, and presentation
6. To understand and apply the concept of algorithms and algorithm analysis
7. To know about some unsolved problems of computer science

Course Learning Outcomes:

After completion of this course, the student will be able to -

1. Understanding of the characteristics of computers
2. Know about the generations of computers
3. Having knowledge of computer languages
4. Understanding of the basics of operating system
5. Acquaintance with a word processor, spreadsheet, and presentation
6. Understanding and ability to design algorithms
7. Know about some unsolved problems of computer science

Course Contents**Unit I**

Data, Data Processing, Merits and demerits of file organization. Database Overview, Purpose of the Database system, File systems Vs. Database Systems, View of Data: Data Abstraction, Instances, Schema.

Unit II

Data Models: Overview of Network, Hierarchical, Relational Model, Database Architecture and Administrators, Codd's Rules.

Unit III

ER Model: Basic Terminology, Entity, Entity sets, attributes and keys, Relation and Relationship sets, Entity-Relationship Diagram, Weak and Strong entity types, Features of E-R Model, Specialization, Generalization Aggregation, Creating table from ER diagram.

Unit IV

Basic Concept of Normalization and decomposition, need for Normalization, Types of Normalization (1NF, 2NF, 3NF and BCNF) and their relevant dependencies.

Unit V

Implement Database concepts using Access, Creating Tables, Data Types, Entering Data, Table Design, Indexing, Importing Data. Operators and expressions, expression builder, various functions of Access, Import and Export Table.

Suggested Readings:

1. Database Management System By A. Silberschatz, Henry F.Korth, S. Sudarshan (McGraw-Hill)
2. An Introduction to Database System By C.J. Date (Addison Wesley)
3. Fundamentals of DBMS By Gupta, Dhillon, Magho, Sharma (Lakhanpal Publishers)
4. Teach yourself Access. Sieglel, BPB
5. Introduction to Computer Data Processing and System Analysis By V K Kapoor (Sultan Chand and Sons)

B.A. / B.Com. /B.Sc. Sem-I Examination 2023

Course Code: VCA4.5DCCT22

Type of the course: Discipline Specific Core Course I of Semester I

Title of the Course: Computer Fundamentals & PC Software Part B

Level of the Course: NHEQF Level 4.5

Credit of the Course: 4

Delivery sub-type of the course: Theory 3. Tutorial 1

Pre-requisites and requisites of the course: Student enrolled and registered in UG Programme first semester.

Duration of Exam: 3 Hours

Maximum Marks: 150

Internal Exam: 30 Marks

Theory Exam: 80 Marks

Practical Exam: 40 Marks

Unit – I

Features of Spreadsheet: Creating, saving, editing, moving around a worksheet, workbook; Inserting, deleting navigation in worksheets, Working with Formula, Cell reference.

Unit – II

Functions (Financial, Database, Maths, Trigonometric, Statistical, etc); Creating, editing, selecting, and naming range. Format Feature, Changing alignment, Character styles, Date Format, Border and colors, etc. Previewing and printing a worksheet.

Unit – III

Goal Seek, Pivot Table, Creating Charts & Graphs. Database in the worksheet, Data organization- what-if analysis, Macro, Linking, and embedding.

Unit – IV

PowerPoint Presentation Package: Creating Presentations, Different presentation templates, Setting backgrounds, and layouts, Customizing, and Formatting a presentation.

Unit – V

Adding Graphics and effects to the presentation, Printing Handouts, and Generating a standalone presentation viewer.

Suggested Readings:

6. Computer Fundamental By P.K. Sinha (BPB Publications)
7. Upgrading and Repairing PCs By Scott and Mueller, Techmedia, New Delhi
8. Rapidex MS Office By Vikas Gupta (Pustak Mahal)
9. Absolute Beginners Guide to Computer Basics By Miller M, Pearson Education,
10. Fundamentals of Computers By Balagurusamy E, Tata McGraw-Hill

B.A. / B.Com. /B.Sc. Part-I Examination 2023

Paper Code - VCA4.5DCCT21

Database Management System**Course Code:** VCA4.5DCCT23**Type of the course:** Discipline Specific Core Course I of Semester I**Title of the Course:** Database Management System Part B**Level of the Course:** NHEQF Level 4.5**Credit of the Course:** 4**Delivery sub-type of the course:** Theory 3. Tutorial 1**Pre-requisites and requisites of the course:** Student enrolled and registered in UG Programme first semester.**Duration of Exam:** 3 Hours**Maximum Marks:** 150**Internal Exam:** 30 Marks**Theory Exam:** 80 Marks**Practical Exam:** 40 Marks**Objectives of the course: Course Objectives:**

1. To understand the characteristics of computers
2. To know about the generations of computers
3. To have knowledge about computer languages
4. To understand the basics of an operating system
5. To be acquainted with word processor, spreadsheet, and presentation
6. To understand and apply the concept of algorithms and algorithm analysis
7. To know about some unsolved problems of computer science

Course Learning Outcomes:

After completion of this course, the student will be able to -

1. Understanding of the characteristics of computers
2. Know about the generations of computers
3. Having knowledge of computer languages
4. Understanding of the basics of operating system
5. Acquaintance with a word processor, spreadsheet, and presentation
6. Understanding and ability to design algorithms
7. Know about some unsolved problems of computer science

Course Contents**Unit I**

Creating Queries, Setting Relationships between Tables, Creating Forms, Controls, and components of form, Master table, and transaction table.

Unit II

Join property, various join options available in access, Creating & Printing Reports. Query Languages: DDL, DML, DCL.

Unit III

Introduction to SQL, Data Types, and Basic SQL commands like Create, Alter, Drop, Truncate, Insert, Update, Delete, etc. Basic SQL Queries, Union, Intersect and Except, Nested Queries.

Unit IV

Transaction management, ACID properties, serializability, and concurrency control.

Unit V

Lock-based concurrency control (2PL, Deadlocks), Time stamping methods, optimistic methods, and database recovery management.

Suggested Readings:

6. Database Management System By A. Silberschatz, Henry F.Korth, S. Sudarshan (McGraw-Hill)
7. An Introduction to Database System By C.J. Date (Addision Wesley)
8. Fundamentals of DBMS By Gupta, Dhillon, Magho, Sharma (Lakhanpal Publishers)
9. Teach yourself Access. Siegel, BPB
Introduction to Computer Data Processing and System Analysis By V K Kapoor (Sultan Chand and Sons)

Scheme of end-of-semester examination:

The B.A./B.Com./B.Sc. Vocational Computer Application is of 6-semester duration full-time program. The program will have core courses, core electives, skill development, and elective open papers, a dissertation/project/training/review/clinical project/internship/case study in the 6th semester, and a combined practical paper based on theory papers in each semester. The dissertation/project/training/review/clinical project/internship/case study will be evaluated by an external examiner.

1. English shall be the medium of instruction and examination.
2. There will be a semester-end examination. The semester-end examinations, evaluation, publication of results, award of marks statements, and award of diplomas shall be undertaken by MGS University, Bikaner.
3. The system of evaluation shall be as follows:
 - 3.1 The evaluation scheme shall comprise external evaluation and internal evaluation. The internal evaluation will carry 20% marks in each course except DECC. Each theory paper will carry 80 marks. The practical paper will carry 40 marks. Any student who fails to participate in classes, viva voce, or practical work will be debarred from appearing in the end-semester examination.
 - 3.2 The duration of the written examination for each paper shall be of three hours and the Practical examination shall be for one-day duration.
 - 3.3 The minimum attendance required by a candidate will be as per the University rules.
4. Award of degree, grading, scope for improvement/appeal – as per Maharaja Ganga Singh University rules and regulations/ordinances (CBCS/Semester). Pass Criteria
5. For passing in the each theory examination, a candidate is required to obtain 36% marks in all theory papers and 36% marks separately in the practical examination and internal and dissertation.

Pattern of Examination

A course will contain 5 units. The question paper shall contain three sections. Section A (10 marks) shall contain 10 questions two from each Unit. Each question shall be of 1 mark. All the questions are compulsory. The answers should not exceed 50 words. Section B (25 marks) shall contain 5 questions (two from each unit with internal choice). Each question shall be of 5 marks. The candidate is required to answer all 5 questions. The answers should not exceed 200 words. Section C (45 marks) shall contain 5 questions, one from each Unit. Each question shall be of 15 marks. The candidate is required to answer any three questions by selecting these three questions from different units. The answers should not exceed 500 words.