Letter No.LNMU(Regulations)-26/2013-　　　/GS(I),　　　Dated-

From,

    A.L. Srivastava
    Officer on Special Duty (Judl.)

To,

    The Vice Chancellor
    L.N. Mithila University,
    Darbhanga.

Sub:- Approval of the Ordinance and Regulations of Bachelor of Computer Application (BCA) Course in Lalit Narayan Mithila University, Darbhanga from the session 2015-16.

Sir,

    I am directed to invite a reference to the University's letter no.9510/14, dated 11.08.2014 on the subject noted above and to inform that the Hon'ble Chancellor, after due consideration of the proposal of the University and advice of the Advisory Committee and in exercise of powers vested in him under Section 38(2) and 39(2)(ii) of the Bihar State Universities Act, 1976, as amended up-to-date, has been pleased to approve the Ordinance and Regulations of **Bachelor of Computer Application (B.C.A.) Course** in Lalit Narayan Mithila University, Darbhanga from the session 2015-16 with the condition to seek approval of the number of seats from the State Government before starting the Course. The University must take care of this condition and report to the Governor's Secretariat about the compliance of this condition before commencement of the course. This Ordinance and Regulations will supersede all previous Ordinance and Regulations concerning Bachelor of Computer Application (B.C.A.) Course in Lalit Narayan Mithila University, Darbhanga with effect from the date of its application.

    Further necessary action may kindly be taken accordingly.

<div align="right">

Yours faithfully,

</div>

Encl.:- As above

<div align="right">

Sd/-
(A.L. Srivastava)
Officer on Special Duty (Judl.)

</div>

Letter No.LNMU(Regulations)-26/2013-　　　/GS(I),　　　Dated-

    Copy alongwith copy of approved Ordinance and Regulations of Bachelor of Computer Application (B.C.A.) Course in L.N. Mithila University, Darbhanga, forwarded to Principal Secretary, Education Department, Govt. of Bihar, for information and necessary action.

Encl.:- As above

<div align="right">

Sd/-
(A.L. Srivastava)
Officer on Special Duty (Judl.)

</div>

Memo No.LNMU(Regulations)-26/2013- 756 /GS(I),　　　Dated- 18-05-15

    Copy alongwith copy of approved Ordinance and Regulations of Bachelor of Computer Application (B.C.A.) Course in L.N. Mithila University, Darbhanga, forwarded to Scientist-D, In-charge, Computer Cell, Raj Bhavan, Patna, for uploading on the website of Raj Bhavan/Guard File of Regulations and Ordinance of Patna University, Patna, for record.

Encl.:- As above

<div align="right">

Officer on Special Duty (Judl.)

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LALIT NARAYAN MITHILA UNIVERSITY

Kameshwaranagar, Darbhanga - 846004

1. L.N. Mithila University, Kameshwar Nagar, Darbhanga

2. BCA (Bachelor of Computer Application)

3. Three Year Degree Course.

4. Degree Course.

5A. <u>Degree I</u> – 5 Papers of 100 Each
    <u>Degree II</u> – 5 Papers of 100 Each
    <u>Degree III</u> – 5 Papers of 100 Each

    <u>Each Papers of 100 Marks carries 60 Marks in Theory, 25 Marks in Practical and 15 marks in Internal Assessment.</u>

    Note: Detailed proposed syllabus attached.

5B. <u>Classes required to cover the Course</u>

	Theory	Practical	Total
Degree I	660	330	990
Degree II	660	330	990
Degree III	660	330	990

6A. For each subject Faculty is not available in the College. But in the case of unavailability of Faculty in various Subjects related to BCA, Part time faculty will have to be hired for smooth running of the Course.

6B. Cost of Completion of each paper of 100 Marks to Faculty.

	Theory Classes	Practical Classes	Total	Rate of Remu.	Amount
Degree-I	132	66	198	250/-	49,500/-

5 Papers in each Year 5X49,500/- = 247,500/-

	Per Paper Remuneration	Papers	Total
Degree I	49,500/-	5	247,500/-
Degree II	49,500/-	5	247,500/-
Degree III	49,500/-	5	247,500/-

			7,42,500/-
			----------------

7. Not Required to Pay extra remuneration to the faculty except a honorarium to course Co-ordinator @2000/- Per Month & Principal Cum Director of the Course @ 1000/- Per Month.

... will run only at one centre Namely -C.M.College Kilaghat

15/4/15

9. Local & Outside business enterprises/Companies organizes campus selection with the help of College administration & Part time Faculty Members.

10. Yes, We have ample resources related to infrastructure for BCA Classes. Apart from well furnished class rooms following equipments are available for BCA students :-

    Computers   - 40
    LCD Projector   - 02
    Electric Podium   - 01
    Printer   - 05
    Hub   - 03
    Online UPS- 2kva -   - 03
    Slide Projector   - 01
    Books   - Approx 500 (Only For BCA)
    Lab Fully Networked

11. It is not Possible for us to furnish the required information.

12. As per our knowledge BCA is a Professional Course not the technical/one. So, need not to take approval or sanction of AICTE/NCTE/DEC/ Science & Technology Department, Govt. of Bihar.

13. In 1998-99, UGC grants vocational course in Computer Application with maximum of 35 seats and granted seed money to start the course. But in our new Proposal, pending with Hon'ble Chancellor, Sixty Seats have been proposed in the proposal.

14. Reservation roster ~~of Seats are strictly~~ shall be followed ~~by~~ C.M.College, Darbhanga. as per Bihar Govt. Rules.

15. Yes, There is a proposal that the Principal will work as a Director of the Course and one Teacher will act as a Co-ordinator. For this Rupees 2000/- shall be provided to the Director and Rupees 2000/- shall be provided to the course-co-ordinator Per Month.

16. Yes, proposal has already been cleared by Academic council on its meeting vide letter no- UB101-185/12 dated 2-09-2012.
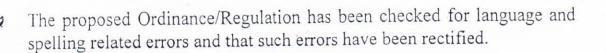
    (Copy enclosed)

17. Yes, Proposal has been cleared by the Syndicate in its meeting held on dated

    (Copy enclosed)

18. Yes, on the recommendation of Syndicate it was placed before the senate in its meeting held on 25.1.2013. The Senate approved the regulations for

15/4/15

1.0 The proposed Ordinance/Regulation has been checked for language and spelling related errors and that such errors have been rectified.

20. Though the importance of Computer is well known , it is worth-while to throw light on why & how Computer application. Of late, it has been observed that most of the students of today seek jobs enmass but the conventional educational system and course therein fail to enable the beneficiaries to earn their livelihood by utilizing the knowledge .They can not afford to take up the training , coaching in the big cities for jobs at a very exorbitant rates due to wretched financial condition & that often leads to frustration and fear psychosis. As such there is need for introduction of such subject to create job opportunities for students community. Computer application course has therefore been introduced in this Institution.

   Computer Application has emerged as the life blood in every walk of life . It provides tremendous job opportunities as the computer is being installed everywhere be it small or big unit, school , college, LIC, Bank, Railways & Post Office etc. As such we are quite confident of starting

   Computer application course successfully and thus it is our earnest effort to brighten the future prospects of the younger generation and improve the life of the inhabitants of the poor & Backward areas of the state.

21. Part time Faculty shall be hired for class room teaching. One III grade & 2 IV grade employees of the College shall be used for smooth running of the course on honorarium basis.

22. Proposed Course Fee :-
   Degree I   - 15,000/-
   Degree II   - 15,000/-
   Degree III   - 15,000/-
   Copy of estimate Attached herewith.

(Vijay Prasad Singh)
REGISTRAR

Regulation for Bachelor of Computer Application (BCA) Course
of the L N Mithila University, Darbhanga.

(1) Short title and commencement:

In exercise of the power conferred by Section 29 of the Bihar Universities Act, 1976, amended up-to-date, the Academic Council of the University hereby makes the following Regulation to be known as **L N Mithila University Regulation governing the Bachelor of Computer Application (BCA) Course, 2012.** It will come into effect from the date it is assented by the Hon'ble Chancellor.

(2) Objective:

BCA will be a three years full time professional degree programme, aimed at providing understanding and skills related to the computer applications in the business and a competence in designing and programming a variety of systems.

(3) Eligibility Criteria:

A Candidate applying for the BCA Programme should have passed 10+2 or equivalent examination from any statutory board with minimum 45% of marks in aggregate. Admission to the course will however be made on the basis of an admission test to be conducted each year by the College. All the reservation rules otherwise applicable for such courses will be followed here also. Candidate must have math as one of the subject at +2 level.

(4. A) Courses Structure:

Course structure for the Bachelor of Computer Application (BCA) course shall be as follows:

	Honours Papers	Total
Degree Part-I	Five Papers of 100 marks each (5X100=500 marks) Theory: 60 X 5=300 Marks Practical: 25X5=125 Marks Internal Assessment: 15 X5= 75 Marks	500 marks
Degree Part-II	Five Papers of 100 marks each (5X100=500 marks) Theory: 60 X 5=300 Marks Practical: 25X5=125 Marks Internal Assessment: 15 X5= 75 Marks	500 marks
Degree Part-III	Five Papers of 100 marks each (5X100=500 marks) Theory: 60 X 5=300 Marks Practical: 25X5=125 Marks Internal Assessment: 15 X5= 75 Marks.	500 marks

2

(4.A) Course Structure:

Course structure for the Bachelor of Computer Application (BCA) course shall be as follows:

	Honours Papers	Total
Degree Part-I	Four (H) Papers of 100 marks each (4 x 100 =400 marks) Theory: 60 x 4 = 240 marks Practical : 25 x 4 =100 marks Internal Assessment : 15 x 4 = 60 Marks Two Subsidery Papers of 100 marks x 2 =200	600 marks
Degree Part-II	Four (H) Papers of 100 marks each (4 x 100 =400 marks) Theory: 60 x 4 = 240 marks Practical : 25 x 4 =100 marks Internal Assessment : 15 x 4 = 60 Marks Two Subsidery Papers of 100 marks x 2 =200	600 marks
Degree Part-III	Three (H) Papers of 100 marks each (3 x 100 =300 marks) Theory: 60 x 3 = 180 marks Practical : 25 x 3 =75 marks Internal Assessment : 15 x 3 = 45 Marks One Paper E.D of 100 marks One Paper for Project Work of 100 marks	500 marks

BCA Degree Part-1

A(H)101 : Computer Fundamental

A(H) 102: Programming Language-C

A(H)103: Operating System

A(H) 104 : Office Automation Tools

A S101: Mathematics

AS102: Business Accounting

BCA Degree Part-II

A(H)201 : Relational Database Management System(RDBMS)

A(H) 202: Data Structure using-C

A(H)203: Web Technology and Internet

204(H) : Object Oriented Programming-C++

S201: Mathematics

BCA Degree Part-III

BCA(H)301 : Computer Graphics (Auto-CAD)

BCA(H)302: Software Engineering

BCA(H)303: Hardware and Networking

BCA(H) 304 : Project Work

BCA E.D.

BCA (H) Degree Part-I

Detailed Syllabus

BCA 101: Computer Fundamental

What is a Computer-an Introduction, History ,Generation of various computers, Uses of Computer in modern society e.g weather forecasting, census , oil exploration, speech recognition, banking , publishing, accounting, research etc. Basic Block diagram of computer. Peripheral devices, Information, language and communication. Computer airthmatic and number systems. ASCII & EBCDIC character sets, Elements of a Computer processing system-hardware software –computer capabalities and limitation. Concepts of files and directories. Hardware features and use –CPU. I/O devices and media , Introduction to networking. Multiprocessing, time sharing, multitasking and real time computing . Variety of hardware system and features. Various types of computers available in market. Micro, Mini and mainframe, Supercomputers.

BCA 102: Programming Language-C

1. **Introduction to Programming**
   - Program and its Technique, Algorithms , Flowchart, compiler, linking and loading , testing and debugging. Introduction to C. Character Set , variables and identifiers , data types, variable definition , arithmetic operators constant and literals, assignment statement ,basic input/output statement . Conditional statement and loops, Decision making , conditions, Relational Operators, Logical operators if statement, if –else statement loops: while loop, do while loop, nested loop, infinite loop, switch statement, Array One dimension array. Array manipulation, searching manipulation, deletion of elements from an array, two dimension array. Addition/ multiplication transpose of a square matrix. Functions Standard Library of C function. Prototype of a function. Return type. Function call. Block Structure. Passing argument to a function : call by value by reference, recursive function . Structure and Unions. Structure variable , initialization , structure assignments. nested structure , structure and function , structure and array , unions . Pointer. Address operators, pointer types declaration, pointer assignment pointer initialization, pointer arithmetic , function , function pointer , pointer array, File processing : Concept of files , file opening in various modes and closing a file , reading from a file , writing to a file.

BCA103: Operating System

Introduction to Operating system, and its functions , category of the Operating System. Various component of OS . Process . Task loader, Memory managements. Process M,anagement, Deadlocks . CPU Scheduling and its Criteria, Threads, Ms-DOS , Windows X, Introduction to Unix.

BCA 104 : Office Automation Tools

MS-Word : Word processing , word processor, Component of Word Processor. Creating a document. Saving a document, Layout , Opening a document , quiting a word, selecting, deselecting and deleting the text, Undo & Redo

the action, finding and replacing text, spelling check and grammer, mail merge, formatting paragraph, printing documents, handling graphics, working with table and columns, header and footer, OLE, Macro.

MS-EXCEL : Spreadsheet concept, components of spreadsheet program, workbook, worksheet, cell, range ,data handling in cell, Cell pointer, Operators , Data types. Functions. Data filtering, Data validation , Conditional Formatting, , Page setup, print preview, page Break, Page Number and Printing Order, Creating and modifying chart, OLE , macro.

POWER POINT: Introduction, Presentation, Slide, Creating and saving slide. View types adding formatted text. word art and clip art , making note pase and hand out, drawing and working with object. Running and controlling slide. Transition and Animation.

SUBSIDIARY PAPERS

PAPER NAME: MATHEMATICS(PAPER CODE: BCA S101)

Stress should be given on development of ideas and theories rather than on solving problems. Problems should be short and intelligent.
1. Set theory - 2 Questions
2. Abstract Algebra and Matrices - 2 Questions
3. Trigonometry - 2 Questions
4. Real Analysis - 3 Questions
5. Co-Ordinate Geometry of two dimensions - 2 Questions
6. Differential Calculus - 3 Questions
7. Vector Analysis - 2 Questions

The question paper will be divided into three sections A, B, C. The examinees will be required to answer eight questions, selecting at least one from each section. Section A - Set Theory, Abstract Algebra & Matrices, and Trigonometry. Section B - Real Analysis, Co-ordinate Geometry of Two Dimensions. Section C - Differential Calculus, Vector Analysis.

1 – SET THEORY

General form of De Morgan Laws : Cartesian Product of sets; Equivalence relation induced by a partition of a set and fundamental theorem on equivalence relation; Composition and factorization of mapping, Set mapping, Countability of rational, real or algebraic number systems.

2 – ABSTRACT ALGEBRA AND MATRICES

Binary operations, Definition of group, Abelian Group with examples, Uniqueness of identity element in a group, Cancellation laws in a group Definition of Subgroup and Cyclic Group with examples Definition of ring, integral domain and field with examples, Definition of matrix, Operations of matrix algebra, kinds of matrices, transpose, adjoint and inverse of a matrix, Product of determinants, Solution of consistent system of linear equations.

3 - TRIGONOMETRY

De Moivre's theorem and its applications, Expansions of sin x, cos x and tan x, Complex argument, Trigonometrical functions of complex angles, Hyperbolic functions, Gregory's Series, Summation of Series.

4 – REAL ANALYSIS

Sequence of Real Numbers and their limits, Bounded sequences, monotonic sequences, Cauchy's general Principle of Convergence, Convergent and divergent series: Convergence of series of Positive terms, Comparison test, Cauchy's root test, D'Alemberts ratio test and Raabe's test, Alternating series and Lebnitz's test: Absolute convergence of series. Continuity and differentiability of real functions of one variable, Properties of continuous functions

5 – CO-ORDINATE GEOMETRY OF TWO DIMENSIONS

System of circles: Orthogonal Circles, Co-axial circles, Parabola, Ellipse and Hyperbola, their standard equations, Equations of tangents and normals, General equation of the second degree, Conditions for different types of conic sections

6 – DIFFERENTIAL CALCULUS

Successive differentiation and Lebnitz's theorem, Taylor's series and Maclaurin's series, Partial Differentiation, Euler's theorem Indeterminate forms, Equation of tangents and normal, Asymptotes, Formulae for radius of curvature of different coordinate systems

7 – VECTOR ANALYSIS

Triple product of vectors, Differentiation of Vector point functions, Differentiation of products of vectors, Gradient of sector, Divergence and Curl of Vectors in Cartesian Coordinates.

BOOKS RECOMMENDED:

PAPER NAME: Business Accounting(PAPER CODE: BCA S102)

Unit I : Introduction to Accounting
- Accounting – Meaning, Objective, Accounting as Source of Information, Internal and External Users of Accounting Information and their Needs. • Qualitative Characteristics of Accounting Information—Reliability, Relevance, Understandability and Comparability. • Basic Accounting Terms – Asset, Liability, Capital, Expense, Income, Expenditur, Revenue, Debtors, Creditors, Goods, Cost, Gain, Stock, Purchase, Sales, Loss, Profit, Voucher, Discount, Transaction, Drawing

Unit II : Theory Base of Accounting
- Accounting Principles – Meaning and Nature. • Accounting Concepts : Entity, Money Measurment, Going Concern, Concern, Acconunting Periosd, Cost Consistency, Conservation, Materiality. • Accounting Standard – Concepts and list of Indian Accounting Standards. • Accounting Mechanism – Single Entry and Double Entry. • Bases of Accounting – Cash Basis, Accrual Basis

Unit III : Recording of Business Transactions
- Voucher and Transactions : Origin of Transactions – Source Documents and Vouchers, Preparation of Vouchers; Accounting Equation Approach – Meaning and Analysis of Transactions using Accounting Equation; Rules of Debit and Credit. • Recording of Transactions : Books of Original Entry – Journal, Special Purpose Books : (i) Cash Book – Simple, Cashbook with Bank Column and Petty Cashbooks: (ii) Purchase Book, Sales Book, Purchase Returns Book, Sales Returns Book; Ledger—Meaning, Utility, Format; Posting from Journal and Subsidiary Books; Balancing of Accounts. • Bank Reconciliation Statement: Meaning, Need and Preparation, Corrected Cash Book Balance.

Unit IV : Trial Balance and Rectification of Errors
- Trial Balance: Meaning, Objectives and Preparation. • Errors : Types of Errors; Errors affecting Trial Balance; Errors not affecting Trial Balance; Detection and Rectification of Errors (One side and Two sided); Uses of Suspend Account.

Unit V : Depreciation, Provision and Reverses
- Depreciation : Meaning and Need for Charging Depreciation, Factors Affecting Depreciation, Methods of Depreciation – Straight Line Methods, Written Down value Methods (Excluding Change in Method), Method of Recording Depre-ciation—Charging to Assets Account, Crating provision for Depreciation/Accumulate Depreciation Account; Treatment of Disposal of an Asset. • Provisions and Reserves : Meaning, Importance, Difference between Provisions and Reserves, Types of Reserves : Revenue Reserve, Capital Reserve, General Reserve, Specific Reserve and Secret Reserve.

Unit VI : Accounting for Bills of Exchange Transactions
- Bills of Exchange and Promissory Note : Definition, Features, Parties, Specimen and Distinctions.
- Important Terms : Terms of Bill, Concept of Accommodation Bill, Days of Grace, Date of Maturity, Bill after Date, Negotiation, Endorsement, Discounting of Bill, Dishonour, Retirement and Renewal of a Bill.
- Accounting Treatment of Bill Transactions.

BCA(H) Degree Part-II

BCA201 : Relational Database Management System(RDBMS)

Database and its categories, Network, Hierarchical and Relational Database, Application of DBMS. Entity Relationship, Relational model, Database architectures (Three levels of the architecture : external, conceptual and internal level). Data Management Issues: backup recovery, maintenance and performance. Database design (scheme Refinement , Functional Dependencies . Normal forms . Decompositions . Normalization . Foxpro Programming. Introduction to Oracle , Components of Oracle. Application on various DDL,DML, commands , Quries , Multiple quries, Views Reports , Triggers and PL/SQL Programming.

BCA 202: Data Structure using-C

Structural programming, top-down design, abstract data type , implement of arrays, triangular arrays , structure. Character strings, Pointer dynamic memory management. Singly linked list. implementation linked using arrays, implementation of linked list using dynamic memory allocation circular link list ,doubly linked list ,polynomial manipulation using linked list, representation of sparse matrices . Stacks their concepts and implementation, multiple stacks. Conversion of infix to postfix notation using stack, evaluation of postfix expression, recursion, how recursion-works, queues their concepts and implementation, deque primary queues , simulation. Trees, Binary tree – their reprentation and operations, tree traversals , threaded binary trees, conversion of general trees to binary trees, binary expression tree and application of trees. Sequential searching. binary search , height balanced tree and weight balanced trees, multiway search trees, digital search , hashing and collision –resolution techniques. Sorting algorithms , bubble sort, selection sort, inserted sort, quick sort , merge sort, address calculation sort and heap sort, complexity of the algorithm. Graphs , terminology, representation of graphs, reachability , minimum path problem, critical events , graphs traversals , spanning trees, application of graph.

BCA203: Web Technology and Internet

Introduction and History, Internet Technology and Protocol , Domain. FTP, IPS. Telnet, E-mail. WWW. Browser. Home page, Internet Etiquette Network Topology, DNS types of Internet Connection Search Engine.
HTML : Introduction Tools and Tag used in HTML, Creating and saving HTML document , Hyperlink and Anchors, Working with Image , Table , Form , Frame , Multimedia Style Sheet and List.
ASP- Discuss the role of server side scripting . Discuss about various Server Language, Study the setting up of PWS and IIS fir ASP . Discuss the Application , Response, Request, Session objects . Study the retrieving of data from forms. Study the use of Text Boxes, radio buttons, check boxes etc. Discuss the validation of from data. Study file uploads, Describe the use of Application object. Describe the use of Sessions. Discuss the importance of cookies . Study the creation of Cookies with ASP. Study the use of ASP custom components. Study the use of Third party components . Study the creating of custom components . Study the Basic Principles of JSP.

BCA 204 : Object Oriented Programming-C++

Identifiers and Keywords. Constants , C++ Operators, Type Conversion , Declaration of Variables. tatement Simple C++ Programs, iostream.h.Keyboard and screen I/O. manipulator Functions. Predefined manipulators, Input and Output Stream Flags , if statement if –else statement switch Statement, for loop, do-while, break statement, continue statement, goto statement.

efining a Function, return Statement, Types of Functions, Actual and Formal Arguments. Local and lobal Variables, Default Arguments, Multifunction Program, Storage Class Specifies, Recursive Function, eprocessors Header Files, Standard Functions. Array, Array and Functions, Multidimensional Arrays,

Character Array. Pointer operator. Address operator, pointer expressions, Pointer Arithmetic, Pointer and Functions, Pointers and Strings. Array of Pointer to Pointers.

Classes Declaration of Class, Member Functions. Defining the Object of a Class. Accessing a Member of Class. Array of Class Objects. Pointer and Classes. Unions and Classes. Nested Class. Constructors . Destructors . Inline Member Functions Static Class Members. Friend Functions, Dynamic Memory Allocation, this Pointer, Single Inheritance, types of Base Classes. Types of Derivation, Ambiguity in Single Inheritance, Array of Class Objects and Single Inheritance, Multiple Inheritance.

Container Classes, Member Access Control, Function Overloading, Special Features of function Overloading Operator Overloading, Overloading assignment operator overloading of Binary Operators. Overloading arithmetic operators, overloading of comparison operators. Operators. Overloading eg Unary Operators, Polymorphism, Early Binding , Polymorphism with pointers, virtual functions , Late Binding, pure virtual Functions, Abstract Base Classes. Constructors under Inheritance, Destructions under Inheritance, Virtual Destructor, Virtual Base class.

Data file operations: Opening & closing of files. State Member functions. reading/writing a character from a file . Binary file operations. Classes & file operations, Array of class objects & file operations, Nested classes & file operations, Random Access, File processing.

SUBSIDIARY PAPERS

PAPER NAME: Mathematics (PAPER CODE : BCA S201)
1. Integral Calculus – 4 Questions
2. Differential Equations – 3 Questions
3. Coordinate Geometry of three dimensions – 2 Questions
4. Linear Programming – 2 Questions
5. Mechanics (Dynamics) – 3 Questions
6. Mechanics (Statics) – 2 Questions

The question paper will be divided into three sections A, B, and C. The examinee will be required to answer eight questions selecting at least one from each section.

Section A – Integral Calculus, Differential Equations.

Section B – Coordinate Geometry of three dimensions, Linear Programming

Section C – Mechanics (Dynamics and Statics)

1. INTEGRAL CALCULUS

Integration of rational and irrational functions, Integration as a summation, Reduction formulae, Rectification and Quadro ture with simple examples. Volume and Surface-area of Solids of revolution. Moment of Inertia, Simple uses of double and triple integration, Gamma and Beta functions

2. DIFFERENTIAL EQUATIONS

Differential equations of the first order and first degree, Variablesseparable, Homogeneous equations, Linear forms, Differential equations of the first order and higher degrees, Clairaut's form, Orthogonal trajectories, Linear Differential equations of the second order with constant coefficients

3. COORDINATE GEOMETRY OF THREE DIMENSIONS

Cartesian coordinates, Spherical polar coordinates, Direction cosines, Angle between two lines, Symmetric equation of a line, Equation of a plane in different forms, Coplanar and skew lines, Sphere, Cone and cylinder: Their standard equations and tangent planes.

4. LINEAR PROGRAMMING

Line segment, Hyperplane, Half-spaces, Convex set, convex combinations, Elementary properties of convex sets. Linear programming problems (LPP) Formation of LPP and its standard form, Feasible solutions, Basic solution and optimal solution, Graphical Solution, Application of Simplex method in solving problems.

5. MECHANICS

Stat**C** : Coplanar forces, Necessary and sufficient conditions for equilibrium of coplanar forces, Necessary condition for equilibrium of forces action on a rigid body, Equation of the line of action of the resultant of coplanar forces acting on a rigid body. Principle of Virtual Work

Dynamics : Basic concepts of Mechanics, Basic Law of Mechanics. Inertial frame of reference, Work and Energy, Principle of linear momentum, Angular momentum, Conservative field, Potential energy.

Principle of conservation of energy for a particle. Rectilinear motion, Uniformly accelerated motion (including connected system), Resisted motion Harmonic Oscillators, Damped and free vibration, Elastic strings, Hook's law, Vertical and horizontal vibration of a particle attached to an elastic String Motion in a plane, Components of velocity and acceleration in Cartesian coordinates and their (i) radial and transverse forms & (ii) tangential and normal forms.

PAPER NAME: Business Accounting(PAPER CODE: BCA S202)

Unit I : Computers in Accounting

- Introduction to Computer and Accounting Information System(AIS). ●Application of Computers in Accounting : Automation of Accounting Process, Designing Accounting Reports, MIS Reporting, Data Exchange with other Information Systems. ●Comparison of Accounting Process in Manual and Computerised Accounting, Highlighting Advantages and Limitations of Automation. ● Sourcing of Accounting System : Readymade and Customised and Tailor-made Accounting System. Advantages and Disadvantages of each option.

Unit II : Accounting and Database System

- Accounting and Database Management System. ● Concepts of Entity and Relationship : Entities and Relationships in an accounting System : Designing and Creating Simple Table, Forms, Queries and Reports in the Context of Accounting System.

Unit III : Financial Statement

- Financial Statements : Meaning and Users. ● Distinction between Capital Expenditure and Revenue Expenditure. ● Trading and Profit and Loss Account : Gross Profit, Operating Profit, Net Profit. ● Balance Sheet : Need, Grouping, Marshalling of Assets and Liabilities, Vertical Presentation of Financial Statements. ● Adjustments in preparation of Financial Statements with respect to Closing Stock, Outstanding Expense3s, Prepaid Expenses, Accrued Income, Income Received in Advance, Depreciation, Bad Debts, Provision for Doubtful Debts, Provision for Discount on Debtors, Manager's Commission. ●Preparation of Trading and Profit & Loss Account and Balance Sheet of Sole Proprietorship.

BCA(H) Degree Part-III

BCA301: Computer Graphics (Auto-CAD)

Installing of Auto-CAD , Introduction of Auto-CAD, Drawing commands, editing commands, Display commands, 3D commands, Drawing aids, Information commands, Blocks and Layers, Elevation(Left, Right, Front) of drawing object, Layout of Building etc.

BCA302: Software Engineering

Program and its type, Algorithm and its flowchart, Program Development, Pseudo code, Trends in Software Development, FCL, System Analysis and Designing, System Development Life Cycle, Linear

Or Waterfall Cycle, Linear cycle phase problem definition system specification, system design, system development, testing, maintenance, iterative Cycle, Spiral model Requirement analysis, Importance of Communication, Identifying Requirements, Feasibility Studies, Databases, Personal System, Centralized System, Data Warehousing, data mining, Distributed System, Evolution of Distributed processing, Client server system, System Investigation. **Visual Basic, Core JAVA**

BCA303: Hardware and Networking

Basic Architecture of PC, Parts of Computer: Mother board, RAM ,CPU, HDD etc.

PC hardware and software Computers.

Hardware used for I/P, O/P & inside computer case,

System board, computers used for communication among devices, Software-3 type of Software, ROM BIOS, OS, application software, Function of BIOS. The boot process, POST and important beep code.

Know about different connectors, System Board. Types of system boards. The CPU & the chipset- CPU from factor. CPU slots and sockets. Different types of RAM, Buses- ISA, MCA, BISA USB, Fire wire. AGP, PCI, Setting the CPU & BUS speed, CMOS setup and data protection.

Managing Storage devices

Know about Semiconductor Memories- RAM ROM on System Board, Main Memory SIMMA, DIMMS Other RAM   Hard drivers hard Drive technology-IDF, EIDE, SCSI, SATA. Hard drive particulars, troubleshooting. Disk backup, Know about Flash memories know Function units of optical memories CD-ROM, DVD ROM etc. Troubleshooting Fundamental, Stand by UPS, line-interactive UPS, Intelligent UPS.

Introduction to Network and Topologies.

Understand the Overview of Networking. 5.2 State the Need for Networking. Classification of Networks LAN,MAN,WAN List the Hardware and Software Components. Various Network Communication Standards. .OSI Reference Model. TCP/IP Reference Model. Understand The Overview of Network Topologies. Know Basic Topologies such as Bus, ring, Star and Hybrid.

LAN Components and Network Addressing

Know about LAN Cable and Connector, wireless network adapter. Know about Coaxial Cables. Twisted Pair Cables. Optical Fibers and Connectors .Explain LAN Devices, Repeaters Hubs, Switches, Network Interface Cards(NICS),Routers (CISCO, DAX. Etc.) Modem (56KBPS Internal or External, ADSL Modems, Etc). Introduction To Network Addressing. Know about TCP/IP Addressing scheme. Components of IP Address IP Address Classes. .IP Sub netting. Know about protocols Hyper Text Transfer Protocol (HTTP), File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP), Telnet

BCA 304 : Project work

Medium of Instruction : The medium of instruction shall be English/Hindi.

A. The University will hold examination at the end of the first, the second and the third years of Course to be known respectively as the BCA Part-I ,II, III EXAMINATION. Each of the papers shall carry 60 marks for university examination marks for computer practical and Internal assessment: of which practical paper shall consists of 25 marks and internal assessment shall

be of 15 marks. Marks of the practical examination and the internal assessment will be submitted by the College to the University before the commencement of annual examination.

B. These written examinations for each of the Theory paper shall be of three hours duration. The medium for the written examination shall be English/Hindi.

C. A student shall not be allowed to appear at the next B.C.A. Part- II or Part-III Annual Examination unless she/he has passed the previous Annual Examination of BCA Part-I or BCA- Part-II as the case may be.

D. A carry over shall be allowed for failures in a maximum of one subject at the Part-I and Part-II examinations but such a candidate shall not be permitted to appear in Par-III examination unless she/he has cleared all the subjects of Part-I and Part-II examinations.

E. In order to be declared successful in BCA Examination the candidate shall have to pass in theory with 45% marks and practical/ project work with 50% marks separately.

F. The following shall be percentage of marks required for:

1. The 1st class 60 % and above marks in the BCA. I, II,III examinations taken together.

2. The 2nd class 45% or more but below 60% marks in the BCA. I, II,III examinations taken together.

3. A candidate who obtains less than 45% marks in the BCA. I, II,III examinations taken together shall be declared to have failed in BCA Examination.

G. A candidate obtaining 75% marks or more in the aggregate at the BCA. I, II, III examinations taken together shall be declared to have passed in First Class with distinction.

H. Candidate shall be permitted to appear in the BCA I, II, III examination only if he has attended at least 75% of the classes held in the respective academic year.

I. Other matters, if any, not covered under present regulation shall be decided by the University.

PAPER NAME: Entrepreneurship Development(PAPER CODE: BCA ED)

Unit 1: Introduction to Entrepreneurship
Chapter 1: Need, Scope and characteristics of Entrepreneurship, **Chapter 2:** Special schemes for technical entrepreneurs – STED, **Chapter 3:** Institution – Network of Support Organization

Unit 2: Project Identification – Selection
Chapter 4: Identification of Opportunity, **Chapter 5:** Criteria for and Principles of Product Selection and Development, **Chapter 6:** Techno-Economic Feasibility of the Project, **Chapter 7:** Market survey techniques

Unit 3: Project Formulation
Chapter 8: Need, scope and approaches to project formulation, **Chapter 9:** Structure of Project Report

Unit 4: Technology
Chapter 10: Choice of Technology, plant and equipment, **Chapter 11:** Plant Layout and process planning for the project

Unit 5: Project Implementation
Chapter 12: Financial Institution, Financing Procedure and Financial Incentives

Unit 6: Project Management
Chapter 13: Resource management: Men, machine and material, **Chapter 14:** Books of Accounts, Financial statements, Funds flow analysis, **Chapter 15:** Elements of Marketing and Sales Management. **Chapter 16:** (a) Nature of product and market strategy. (b) Packaging and advertising. (c) After sales services

Unit 7: Government control/regulations
Chapter 17: Important provisions of Factory Act, Sales of goods act, Partnership Act

Chapter 18: Income Tax, Sales Tax and Excise Duty

Unit 8: Project Monitoring
Chapter 19: Sickness in Small Scale Industries and their remedial measures.

Books Recommended:
1. Entrepreneurship Development – S. S. Khanka (S. Chand & Co.), 2. Entrepreneurship Development – (Bharti Bhawan), 3. Small Scale Industries and Entrepreneurship – Vasant Desai (Himalayan Publications), 4. Entrepreneurship and Small Business Management – M. B. Shukla, (Mishra Trading Corporation, Varanasi), 5. Entrepreneurship of Small Scale Industries – M. V. Deshpande (Deep & Deep Publications, New Delhi).

25/4/15

18/6/12

Principal
I. C. M. College, Darbhanga

Medium of Instruction: The medium of instruction shall be English / Hindi.

Examination and Results:

A. The University will hold examination at the end of the first, the second and the third years of Course to be known respectively as the B.C.A. Part I, Part II and Part III Examination. Each of the Papers shall carry 60 marks for university examination and 40 marks for computer practical and internal assessment; of which practical paper shall consist of 25 marks and internal assessment shall be of 15 marks. Marks of the practical examination and the internal assessment will be submitted by the College to the University before the commencement of annual examination.

B. These written examinations for each of the Theory paper shall be of three hours duration. The medium for the written examination shall be English / Hindi.

C. A student shall not be allowed to appear at the next Annual Examination unless she / he has passed the previous Annual Examination. as the case may be. But such a candidates shall not be admitted to part -III class unless she/he has passed in all subjects of Part-I Examination. Any other direction or amendment made by competent authorities shall also be applicable in the matter.

D. A carry over shall be allowed for failures in a maximum of two subject papers at the Part I and Part II examinations but such a candidate shall not be permitted to appear in Part III examination unless she / he has cleared all the subjects of Part I examinations.

E. In order to be declared successful in B.C.A. Examination the candidate shall have to pass in theory with 45% marks and practical / project work with 50% marks separately.

F. The following shall be the percentage of marks required for:

I. The 1st Class 60 percent and above marks in the B.C.A. I, II, III examinations taken together;

II. The 2nd Class 45% or more but below 60% marks in the B.C.A. I, II, III examinations taken together;

III. A candidate who obtains less than 45% marks in the B.C.A. I, II, III examinations taken together shall be declared to have failed in BCA Examination.

G. A candidate obtaining 75% marks or more in the aggregate at the BCA I, II, III taken together shall be declared to have passed in First Class with Distinction.

H. Candidates shall be permitted to appear in the BCA I, II, III examination only if he has attended at least 75% of the classes held in the respective academic year.

I. Other matters, if any, not covered under present regulation shall be decided by the University.

ORDINANCE

FEE STRUCTURE FOR BCA COURSE

Proposed Yearly Fee Structure For BCA Course						
Fee Structure						
Particulars	1st year		2nd year		3rd year	
	General	NRI	General	NRI	General	NRI
Admission	200	400	200	400	200	400
Registration	100	200	100	200	100	200
Tution fee	6500	13000	6500	13000	6500	13000
BCA Library	500	1000	500	1000	500	1000
Lab Development Charge	2500	5000	2500	5000	2500	5000
Lab Maintenance	2500	5000	2500	5000	2500	5000
Internet Facility	550	1100	550	1100	550	1100
Common Room	200	400	200	400	200	400
Stationary	225	450	225	450	225	450
Extra-Curricular Activity	500	1000	500	1000	500	1000
Miscellaneous	500	1000	500	1000	500	1000
Electricity	300	600	300	600	300	600
Magazine	75	150	75	150	75	150
Environment Protechtion	200	400	200	400	200	400
Social Work	100	200	100	200	100	200
Identity Card	50	100	50	100	50	100
Grand Total	15000	30000	15000	30000	15000	30000

The Fee structure may be revised from time with Approval of Advisory Committee of BCA

Principal 18/6/12
Principal
C.M.College, Darbhanga

Abstract of Infrastructure Facilities Available for B.C.A Course

SL.NO.	ITEM	SIZE/NUMBERS
01	PRESENT CLASS ROOM-03 ROOMS	40'X 25'
02	Present Lab. Space(Ground Floor)	20' X 11'
03	Present lab. Space(First floor)	20' X 11'
04	NUMBERS OF FUNCTIONAL COMPUTERS	30
05	NUMBERS OF BOOKS	156
06	Proposed Class Room-03 Rooms	40'X 25'
07	Proposed lab. -01	40'X 25'
08	Computers to be purchased	12

Details of available equipments in computer Laboratory for B.C.A Course

SL.NO.	ITEM DETAILS	NO. OF PIECES
01	COMPUTER H.P (Intel Core 2 Duo)	12
02	Computer H.C.L (Intel Pentium Dual Core)	02
03	Computer H.C.L (Intel Pentium Dual Core)	02
04	Computer H.P (Intel Pentium Dual Core)	14
05	H.P Laser Jet Printer P1007	01
06	H.P Laser Jet Printer 1020	01
07	Projector	01
08	On Line UPS-02 KVA Sukam	03
09	Battery-SF	20
10	Off Line UPS Luminous	14
11	Gen Set -Kriloshkar-05 KVA	01
12	Fully Networking Lab	

18/6/12

Principal

Principal
C. M College, Darbhanga

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