FACULTY OF ECONOMICS AND BUSINESS

SYLLABUS

Bachelor of Science (Economics) Honours (Semester I–VI)

Session 2024-2025

(Under Continuous Evaluation System)

The Heritage Institution
KANYA MAHA VIDYALAYA
JALANDHAR

(Autonomous)

Program Specific Outcome – Bachelor of Science (Economics) Honours

B.Sc. (Economics) is a four-year graduation degree program. The program aims at creation and dissemination of knowledge regarding core economic principles and issues and focusing on the link between theory and real world.

Upon successful completion of this course, students will be able to

PSO 1:   learn about the culture and the basic technicalities, creative skills, literature and academic languages of Punjab.

PSO 2: have in depth knowledge of the concepts and basic theories of main streams of Economics.

PSO 3: learn data handling, programming, quantitative analytical techniques and basic research skills.

PSO 4: understand the different aspects of Indian economy and latest developments therein.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
SCHEME AND CURRICULAM OF EXAMINATION OF FOUR YEAR HONOURS DEGREE PROGRAM
<u>Session: 2024-25</u>

						Marks				
Semester I										
Course Code	**Course Name**	**Course Type**	**Hours Per Week L-T-P**	**Credits L-T-P**	**Total Credits**	**Total**	**Ext. L**	**Ext. P**	**CA**	**Examination time (in Hours)**
BECL-1421 BECL-1031 BECL-1431	Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4-0-0	4-0-0	4	100	70	-	30	3
BECL-1212	English Language Skills -I	AEC	4-0-0	4-0-0	4	100	70	-	30	3
BECL-1175	**Economics**(Microeconomics)	DSC 1	4-0-0	4-0-0	4	100	70	-	30	3
BECL-1453	**Quantitative Techniques** (Quantitative Techniques-I)	DSC 2	4-0-0	4-0-0	4	100	70	-	30	3
BECL-1333	**Mathematics** Algebra	DSC 2	4-0-0	4-0-0	5	100	70	-	30	3+3
BECP-1333	**Mathematics** Algebra laboratory		0-0-2	0-0-1		50	40		10	
BECM-1134	**Computer Science** (Computer Fundamental and PC Software) **Computer Science**(Computer Fundamental and PC Software) (PRACTICAL)	DSC 3	3-0-2	3-0-1	4	100	70	-	30	3+3
BECM-1124	**Computer Applications (Vocational)**(Computer Fundamentals and PC Software) **Computer Applications** (Computer Fundamentals and PC Software) (PRACTICAL)	DSC 3	3-0-2	3-0-1	4	100	70	-	30	3+3
VACF-1495	Foundation Course	VAC	2-0-0	2-0-0	2	50	40	-	10	1
	Total Credits with Quantitative Techniques Total Credits with Mathematics				22 23					

C-Compulsory
AEC-Ability Enhancement Course
DSC- Discipline Specific Course
VAC- Value Added Course
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

PUNJABI (COMPULSORY)
COURSE CODE- BECL -1421

COURSE OUTCOMES

CO1 : 'd' ozr'(eftsk Gkr) Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo eftsk gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j? sK fe T[j nkX[fBe d''o ftu uZb ojhnK ekft XkoktK ns/ ethnK pko/ frnkB jkf;b eo ;eD.fJ; dk j'o wB'oE eftsk dh ftnkfynk, ftPb/PD s/ w[bzeD dh gqfefonk s'A ikD{ eokT[Dk th j? sK fe T[j ;wekbh ;wki dhnK ;wZf;nktK Bz{ ;wM ;eD ns/ nkb'uBkswe fdqPNh pDk ;eD.

CO2: ';z;ko dhnK gqf;X j;shnK' ihtBh dh ftXk Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo ihtBh Bz{ gVQD dh o[uh Bz{ g?dk eoBk j? ns/ ihtBh irs Bkb i'VDk j?.

CO3: g?oQk ouBk ns/ g?oQk gVQ e/ gqPBK d/ T[so d/D dk wBo'E ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.

CO4: GkPk tzBrhnK L GkPk dk Ne;kbh o{g, GkPk ns/ T[g-GkPk ftu nzso,gzikph T[gGkPktK d/ gSkD -fuzBQ,gzikph GkPk L fBek; s/ ftek; gVQD Bkb ftfdnkoEh GkPk tzBrhnK s'A tke| j'Dr/.

PUNJABI (COMPULSORY)
COURSE CODE- BECL -1421

;wK L 3 xzN/   **Maximum Marks: 100**

L-T-P   **Theory   : 80**

    4-0-0   **CA   :20**

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 16 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.

gkmeqw ns/ gkm g[;seK

:{fBN-I

d' ozr (eftsk Gkr) (;zgkHjofizdo f;zx fYb'A ns/ gqhsw f;zx ;or'Xhnk), r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

(ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ /ਕਵਿਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ/;ko)   **16 nze**

:{fBN-II

;z;ko dhnK gqf;ZX j;shnK (ihtBh BzL 1 s'A 9 sZe)

(;zgkHfgqzH s/ik f;zx, joBkw f;zx PkB),gzikph ;kfjs gqekPB, nzfwqs;o.

(ਵਿਸ਼ਾ-ਵਸਤੂ/ BkfJe fpzp/ ;ko)   **16 nze**

:{fBN-III

(T)   g?oQk ouBk (fszB ftu'A fJZe)

(n)   g?oQk gVQ e/ gqPBK d/ T[Zso.   **16 nze**

:{fBN-IV

(T) GkPk tzBrhnK L GkPk dk Ne;kbh o{g, GkPk ns/ T[g-GkPk ftu nzso,gzikph T[gGkPktK d/ gSkD-fuzBQ.

(n) gzikph GkPk L fBek; s/ ftek;

16 nze

Course outcomes

CO1:w[ZYbh gzikph gVQkT[D dk wB'oE ftfdnkoEhnK B{z gzikph GkPk B{z f;ykT[D dh gqfefonk ftu gk e/ fJe j'o GkPk f;ZyD dk w''ek gqdkB eoBk j?. ftfdnkoEhnK B{z g?Ash nZyoh, nZyo eqw, g?o fpzdh tkb/ toD ns/ g?o ftu g?D tkb/ toD ns/ wksoktK (wZ[Ybh ikD gSkD) brk\o (fpzdh, fNZgh, nZXe) dh gSkD ns/ tos'A s'A ikD{ eotkfJnk ikt/rk.

CO2: ftfdnkoEhnK B{z gzikph Ppd pDso dh wZ[Ybh ikD gSkD (;kXkoB Ppd, ;z:[es Ppd, fwPos Ppd,w{b Ppd,nr/so ns/ fgS/so) s'A ikD{ eotkfJnk ikt/rk.

CO3: ftfdnkoEhnK B{z fBZs tos'A dh gzikph Ppdktbh L pkIko, tgko, foPs/Bks/, y/sh ns/ j'o XzfdnK nkfd s'A ikD{ eotkfJnk ikt/rk.

CO4: ftfdnkoEhnK B{z gzikph ftu j|s/ d/ ;Zs fdBK d/ BK, pkoQK wjhfBnK d/ BK, oZ[sK d/ BK, fJe s'A ;'' sZe frDsh PpdK ftu f;ykT[Dk j?.

BASIC PUNJABI

In lieu of Punjabi(Compulsory)
COURSE CODE - BECL -1031

;wK L 3 xzN/   Maximum Marks: 100

L-T-P   **Theory   : 80**
 4-0-0   **CA**

:20

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ eZj[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 16 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK

ftu eo ;edk j?.

gkmeqw

:{fBN-I

g?Ash nZyoh, nZyo eqw, g?o fpzdh tkb/ toD ns/ g?o ftu g?D tkb/ toD ns/ wksqtK
        (wZ[Ybh

ikD gSkD) brk\o (fpzdh, fNZgh, nZXe) L gSkD ns/ tos'A .

                                                        16 nze

:{fBN-II

gzikph Ppd pDso L wZ[Ybh ikD gSkD (;kXkoB Ppd, ;z:[es Ppd, fwPos Ppd, w{b

Ppd, nr/so ns/ fgS/so)   **16 nze**

:{fBN-III

fBZis tos'A dh gzikph Ppdktbh L pkIko, tgko, foPs/ Bks/, y/sh ns/ j'o XzfdnK nkfd Bkb

:{fBN-IV

j|s/ d/ ;Zs fdBK d/ BK, pkoQK wjhfBnK d/ BK, oZ[sK d/ BK, fJe s'A ;" se frDsh PpdK ftu .

BACHELOR OF SCIENCE (ECONOMICS) (HONOURS)

(Credit Based Continuous Evaluation Grading System) (CBCEGS)

(NEP-2020)
Four Year Degree Programme

Semester I
Session 2024-25
ENGLISH LANGUAGE SKILLS-1

Course Code: BARL/BSML/BSNL/BCSL/BECL -1212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: understand fundamental grammatical rules governing tenses, the use of modal verbs and make correct usage in their language through the study of "English Grammar in Use" by Raymond Murphy

CO 2: to develop the art of creative expression by writing a paragraph on any given topic

CO 3: comprehend the meaning of texts and answer questions related to situations, episodes, and characters depicted in them through the study of the essays in the text "Prose for Young Learners"

CO 4: appreciate the writings of various Indian and foreign story and prose writers and relate them to their socio-cultural milieu through the study of the essays in the text "Prose for Young Learners"

BACHELOR OF SCIENCE (ECONOMICS) (HONOURS)
(Credit Based Continuous Evaluation Grading System) (CBCEGS)

(NEP-2020)
Four Year Degree Programme

Semester I

Session2024-25
ENGLISH LANGUAGE SKILLS-1
Course Code: BARL/BSML/BSNL/BCSL/BECL -1212

Examination Time: 3 Hr	**Total Marks: 100**
L-T-P (Credits): 4-0-0	**Theory: 70**
	CA: 30

Instructions for the Examiner:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.
(14x5=70)

The syllabus is divided in four sections as mentioned below.

SECTION–A
English Grammar in Use, 5th Edition by Raymond Murphy, CUP (Units: 1-37)

SECTION–B
Paragraph Writing and English Grammar in Use (Units: 38-48)

SECTION–C
Prose for Young Learners: Essays at Sr. No. 1, 2, 3, 5 and 6

SECTION–D
Prose for Young Learners: Essays at Sr. No. 7, 8, 9, 10 and 11

Texts Prescribed:
1. *English Grammar in Use* (5th Edition) by Raymond Murphy, CUP
2. *Prose for Young Learners* (Guru Nanak Dev University, Amritsar)

Bachelor of Science (Economics) Semester–I

Session 2024-25
Course Code: BECL-1175
Economics (Microeconomics)

Course outcomes:

After passing this course, students will be able to

CO1: describe and apply the methods of analyzing consumer behavior through demand and supply, elasticity and utility.

CO2: learn about the various cost and the production function.

CO3: learn about various market structures.

CO4: understand various theories of rent, interest and profit.

Bachelor of Science (Economics) Semester–I
Session 2024-25
Course Code: BECL-1175
Economics (Microeconomics)

Time: 3 Hours

L-T-P (Credits):4-0-0
Max. Marks: 100
Theory: 70
CA: 30

Note: Instructions for the Paper–Setter:

Two questions, each carrying 14 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I
Introductory: Definition of Economics, Nature, Scope and Assumptions of Microeconomics. Basic Economics Problems. Demand Function, Supply Function, Price Determination, Elasticity of Demand – Price, Income and Cross elasticities and their Measurement.
Utility Analysis: Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility, Indifference Curve Analysis

UNIT–II
Theory of Production and Costs: Concept of Production Function. Laws of Returns to Scale and Law of Variable Proportions
Cost: Concepts and Cost Curves in the short and in the long run; Traditional Theory of Cost

UNIT–III
Market forms: Perfect Competition- Assumptions, Price and Output determination of firm and Industry in the short run and long run; Monopoly- Assumptions and Equilibrium.
Monopolistic Competition- Assumptions and Equilibrium (except Group Equilibrium).

UNIT–IV
Rent: Concept, Ricardian Theory and Modern Theory of Rent.
Interest: Concept, Classical Theory, Loanable Funds Theory.
Profit: Concept, Risk and Uncertainty Theories.

Case Study: Elasticity of Demand and Monopolistic Competition

Suggested Readings:
1. Ahuja, H.L. (2018), *Advanced Economics Theory: Micro Economics analysis*, S. Chand Publishing, New Delhi
2. Dwivedi, D.N. (2018), *Microeconomics: Theory and Applications*, Pearson Education, New Delhi.
3. Koutsoyiannis, A. (2015), Modern *Microeconomics,* Macmillan Press, London.
4.Sen, A.(2007), *Microeconomics: Theory and Applications*, Oxford University Press, New Delhi.
Note: The latest editions of the books are recommended.

Bachelor of Science (Economics) Semester –I
Session: 2024-25
Course Code: BECL-1453
Quantitative Techniques–I

Course outcomes:

After passing this course, students will be able to:

CO1: organize, manage and present data.

CO2: analyze the data by using central tendency and dispersion

CO3: learn the relationship between variables and prediction using correlation and regression.

CO4: compare magnitudes of related variables to each other over a period of time with the help of index numbers and understand the concept of time series in analyzing economic problems.

Bachelor of Science (Economics) Semester –I
Session 2024-25
Course Code: BECL-1453
Quantitative Techniques–I

Time: 3 Hours

L-T-P (Credits):4-0-0
Max. Marks: 100
Theory: 70
CA: 30

Note: Instructions for the Paper–Setters:
Two questions, each carrying 14 marks, from each of Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.
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UNIT–I
Statistics: Definition, Scope in Economics, Significance, Limitations. Classification, Tabulation, Diagrammatic and Graphical Representation of Data (Pie Chart, Bar Diagram, Histogram, Frequency Polygon, Ogive curve, etc.)

UNIT–II
Concepts and Measures of Central Tendency: Means, Median, Mode. Concepts and Measures of Relative Dispersion

UNIT–III
Correlation Analysis: Introduction, Importance, Karl-Pearson's Coefficient of Correlation, Spearman's Rank Correlation Coefficient, Simple Regression Analysis; Difference Between Correlation and Regression, Lines of Regression, Properties of Correlation and Regression Coefficients (Stress on Numerical Examples).

UNIT–IV
Index Numbers: Concept of Index Number, Purpose Construction & Problems, Laspeyre's, Paasche's and Fisher's Formulae, Tests of Consistency.
Analysis of Time Series: Definition, Components of Time Series, Measurement of Trend by Different Methods (Stress on Examples).

Suggested Readings:
1. Gupta, S.P. (2014), *Statistical Methods*, Sultan Chand & Sons, New Delhi.
2. Croxton, F.E., Cowden D.J. and Klein, S. (1973), *Applied General Statistics*, 3rd. Ed., Prentice Hall of India, New Delhi.
3. Nagar, A.L. and Das, R.K. (1976), *Basic Statistics*, Oxford University Press, Bombay.
Note: The latest editions of the books are recommended.

Bachelor of Arts/ Bachelor of Science /Honours

Semester–I
Session: 2024-25
Course Title: Algebra

Course Code: BECL -1333

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand the concept of matrix congruence of skew symmetric matrices and its reduction in real field. Solve system of linear equations.

CO 2: Obtain Eigen values, Eigen vectors, minimal and characteristic equation of a matrix and to apply it in advanced dynamics and electric current.

CO 3: Classify real quadratic form in variables, definite, semi- definite and indefinite real quadratic form.

CO 4: To find the relations between the roots and coefficients of general polynomial equation in one variable, distinguish between solution of cubic equations and Bi-quadratic equations.

Bachelor of Arts/ Bachelor of Science /Honours
Semester–I
Session: 2024-25
Course Title: Algebra
Course Code: BECL -1333

Examination Time: 3 Hours

L T P
4 0 0

Max. Marks: 100

Theory: 70
CA: 30

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Partitioning of Matrices, Matrices Partitioned conformably for Multiplication, Rank of a Matrix, Normal form, Row rank, Column rank of a matrix, Equivalence of column and row ranks, rank of product of matrices, Linear independence of row and column vectors Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations. Theorems on consistencyof a system of linear equations.

Unit-II

Eigenvalues, Eigenvectors, Hermitian Matrix, Skew Hermitian matrix and unitary matrix andproperties of Eigen value, minimal and the characteristic equation of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.

Unit-III

Quadratic Forms, quadratic form as a product of matrices. The set of quadratic forms over a field. Congruence of quadratic forms and matrices. Congruent transformations of matrices. Elementary congruent transformations. Congruent reduction of a symmetric matrix. Reduction in the real field. Classification of real quadratic forms in n variables. Definite, semi–definite and indefinite real quadratic forms. Characteristic properties of definite, semi–definite and indefinite forms.

Unit-IV

Relations between the roots and coefficients of general polynomial equation of degree n in one variable. Vieta 's Formula, Fundamental Theorem of Algebra (Statement only) Transformation of equations, Equations of Squared differences, Solution of cubic equations by Cardan method, Discriminant of polynomial equation, Discriminant of Cubic equation, nature of roots of cubic, Solution of Biquadratic by Ferrari's Method with illustrations, Descartes's Rules of Signs with illustrations.

Text Books:-

1. Shanti Narayan and P.K. Mittal: Text Book of Matrices.
2. K.B. Datta : Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., New Delhi, 2000.

Reference Book:-

1. Tom M. Apostol: Calculus: An Indian Adaptation, Wiley India, 2023

Semester–I
Session: 2024-25
Course Title: Algebra Laboratory
Course Code: BECP -1333

Examination Time: 3 Hours   **Max. Marks: 50**
                                                             Practical: 40
L T P   **CA: 10**
0 0 2

List of Practicals (using any package)
  1. Introduction to the computer package in the practicals.
  2. Matrix operations: addition, multiplication, inverse. transpose, determinant of matrix.
  3. Find Rank of matrix: Row Rank, Column Rank.
  4. Find row reduced echelon form
  5. Create the coefficient matrix A and vector b. Solve for x using the inverse,
     using the built-in function.
  6. Solving a linear system, using Gauss elimination numerically.
  7. Finding eigenvalues and eigenvectors, numerically.

 Reference Books:-
  1. S.S. Sastry, Engineering Mathematics - Volume I (4th Edition), PHI, 2008.
  2. S.S. Sastry, Engineering Mathematics - Volume II (4th Edition), PHI, 2008.

Bachelor of Science (Economics) Hons. Semester- I
Session 2024-25
Course Code: BECM-1134
COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)

Course Outcomes:

After passing this course the student will be able to:

CO1: comprehend about computer hardware, operating system concepts and various system software.

CO2: Identify various input, output and memory devices.

CO3: Apply office automation software to create professional and academic documents.

CO4: Apply skills to make effective presentations using associated application software.

Bachelor of Science (Economics) Hons. Semester- I
Session 2024-25
Course Code: BECM-1134
COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                    Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Instructions for Paper Setter -

Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II

Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor, Printers (laser printer, dot matrix printer, ink jet printer).

Memories: Primary Memory-RAM and ROM. Secondary Memory- Hard Disk.

Introduction to Windows based operating system and Desktop icons.

UNIT III

Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document.

Page setup, margins, gutters, font properties, Alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document.

Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, Mail Merge.

UNIT IV

PowerPoint Presentation: Introduction to PowerPoint, starting a new slide, saving presentation, moving/rearranging slides, printing slides.

Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting.

Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds.

References:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
5. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

Bachelor of Science (Economics) Hons. Semester- I
Session 2024-25
Course Code: BECM-1134

COMPUTER SCIENCE

(COMPUTER FUNDAMENTALS AND PC SOFTWARE)

(PRACTICAL)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                          Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Practical based on PC Software - Office.

Bachelor of Science(Economics) Semester I

Session 2024-25
COURSE CODE: BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS ANDPC SOFTWARE)

Course Outcomes:

After passing this course the student will be able to:

CO1: comprehend about computer hardware, operating system concepts and various system software.

CO2: Identify various input, output and memory devices.

CO3: Apply office automation software to create professional and academic documents.

CO4: Apply skills to make effective presentations using associated application software.

Bachelor of Science(Economics) Semester I

Session 2024-25
COURSE CODE: BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(THEORY)

Examination Time: 3 Hrs.	**Max. Marks: 100**
	Theory: 40
L-T-P: 3-0-1	**Practical: 30**
Credits: 4	**CA: 30**

Instructions for Paper Setter -

Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II

Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor, Printers (laser printer, dotmatrix printer, ink jet printer).
Memories: Primary Memory-RAM and ROM. **Secondary Memory** - Hard Disk, CD, DVD.
Introduction to Windows based operating system and Desktop icons.

UNIT III

Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), Understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, wizards, Mail Merge.

UNIT IV

PowerPoint: Introduction to PowerPoint, Exploring menus, starting a new slide, saving presentation, moving/rearranging slides, printing slides. Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting. Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

References:

1.   Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2.   Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3.   Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4.   V. Rajaraman, NeeharikaAdabala, Fundamentals of Computers, PHI Learning, 2015.
5.   P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

Bachelor of Science(Economics) Semester I

Session 2024-25
COURSE CODE: BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(PRACTICAL)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                     Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Instructions for the examiners: - Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Students will prepare a report after analyzing print and social media advertisements along with the local market survey to understand the desktop/laptop vendors and prices. Arrange the options available as per price/performance preferences.

Lab exercises based on:

- Practice the Windows Operating System command line and the GUI for user interaction, personalization, and file management
- Document preparation with Word using the features mentioned in the syllabus
- Presentation preparation with PowerPoint using the features mentioned in the syllabus

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
SCHEME AND CURRICULAM OF EXAMINATION OF FOUR YEAR HONOURS DEGREE PROGRAM
<u>Bachelor of Science (Honours) Economics</u>
<u>Session: 2024-25</u>

Semester II										
Course Code	**Course Name**	**Course Type**	**Hours Per Week L-T-P**	**Credits L-T-P**	**Total Credits**	**Marks**				**Examination time (in Hours)**
						Total	**Ext.**		**CA**	
							L	**P**		
BECL-2421 BECL-2031 BECL-2431	Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4-0-0	4-0-0	4	100	70	-	30	3
BECL-2212	Language and Literature -I	MDC	4-0-0	4-0-0	4	100	70	-	30	3
BECL-2175	**Economics**(Macroeconomics)	DSC 1	4-0-0	4-0-0	4	100	70	-	30	3
BECL-2453	**Quantitative Techniques** (Quantitative Techniques-II)	DSC 2	4-0-0	4-0-0	4	100	70	-	30	3
BECL-2333	Mathematics Calculus	DSC 2	4-0-0	4-0-0	5	100	70	-	30	3+3
BECP-2333	Mathematics Calculus Laboratory		0-0-2	0-0-1		50	40		10	
BECM-2134	**Computer Science** (Introduction to Programming in C)	DSC 3	3-0-2	3-0-1	4	100	40	30	30	3+3
	Computer Science (Introduction to Programming in C) (PRACTICAL)									
BECM-2124	**Computer Applications (Vocational)** (Introduction to Programming using Python)	DSC 3	3-0-2	3-0-1	4	100	40	30	30	3+3
	Computer Applications (Introduction to Programming using Python) (PRACTICAL)									
VACD-2161	Drug Abuse: Problem Management and Prevention	VAC	2-0-0	2-0-0	2	50	40	-	10	1
BECM-2170	Data Analysis Using Excel	SEC	1-0-4	1-0-2	3	100	30	40	30	1+1
	Total Credits with Quantitative Techniques Total Credits with Mathematics				25 26					

C-Compulsory
MDC- multi-Discipline Course
SEC- Skill Enhancement Course
DSC- Discipline Specific Course
VAC- Value Added Course
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

PUNJABI (COMPULSORY)
COURSE CODE- BECL -2421

COURSE OUTCOMES

CO1: 'd' ozr' (ejkDh Gkr) Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo ejkDh gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j? .fJ; dk j'o wB'oE ejkDh dh ftPb/PD s/ w[bzeD dh gqfefonk s'A ikD{ eokT[Dk th j? sK fe T[j ;wekbh ;wki dhnK ;wZf;nktK Bz{ ;wM ;eD ns/ nkb'uBksew fdqPNh pDk ;eD.

CO2: ';z;ko dhnK gqf;X j;shnK' ihtBh dh ftXk Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo ihtBh Bz{ gVQD dh o[uh Bz{ g?dk eoBk j? ns/ ihtBh irs Bkb i'VDk j?.

CO3: Ppd pDso ns/ Ppd ouBk gVQD Bkb ftfdnkoEh fJ;d/ w[ZYb/ ;zebgK B{z nkXko pDk e/ fJjBK ;zebgK s'A ikD{ j'Dr/.Ppd Pq/DhnK Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo gzikph GkPk dh nwhoh dk ns/ pkohehnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?.

CO4: d|soh fuZmh gZso fbyD dk wB'oE ftfdnkoEhnK B{z fJ; ebk ftu fBg[zB eoBk j? I w[jkto//nykD dh tos'A Bkb rZbpksk ftu gogZesk nkT[Adh j?.fJj ftfdnkoEhnK dh rZbpks ftu fByko fbnkT[D dk ezw eoBr/.

Session 2024-25
(Semester II)

PUNJABI (COMPULSORY)
COURSE CODE- BECL -2421

;wK L 3 xzN/   **Maximum Marks: 100**

L-T-P   **Theory   : 80**
4-0-0   **CA   :20**

nze tzv ns/ gohfyne bJh jdkfJsK

1H   **gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.**

2H   **ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.**

3H   **jo/e gqPB d/ 16 nze jB.**

4H   **g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.**

gkmeqw ns/ gkm g[;seK

:{fBN-I

d' ozr (ejkDh Gkr) (;zgkHjofizdo f;zx fYb'A ns/ gqhsw f;zx ;or'Xhnk),r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

(ਵਿਸ਼ਾ-ਵਸਤੂ/ **gkso fusoB / ;ko)**   **16 nze**

:{fBN-II

;z;ko dhnK gqf;ZX j;shnK (ihtBh BzL 10 s'A 18 se) (;zgkHfgqzH s/ik f;zx, joBkw f;zx Pkw),

gzikph ;kfjs gqekPB, nzfwqs;o.

(ਵਿਸ਼ਾ-ਵਸਤੂ/ **BkfJe fpzp/ ;ko)**
16 nze

:{fBN-III

(T)   Ppd pDso ns/ Ppd ouBk L gfoGkPk, w[ZYb/ ;zebg.

(n)   Ppd Pq/DhnK   **16 nze**

:{fBN-IV

(T)   d|soh fuZmh gZso

(n)   w[jkto//nykD   **16 nze**

BASIC PUNJABI
In lieu of Punjabi (Compulsory)
COURSE CODE - BECL -2031

Course outcomes

CO1: Ppd P/qDhnK L gSkD ns/ tos'A (BKt, gVBKt, fefonk, ftP/PD, fefonk ftP/PD, ;pzXe, :'ie ns/ ft;fwe) Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo gzikph GkPk dh nwhoh dk ns/ pkohehnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?/.

CO2: ftfdnkoEh gzikph tke pDso (;kXkoB tke, ;z:[es tke, fwPos tke, fpnkBhnk tke, gqPB tkue tke ns/ j[ewh tke) dh gfoGkPk ns/ fJ; dh pDso s'A ikD{ j'Dr/ ns/ T[BQK dh GkPk s/ geV wip{s j't/rh.

CO3: g?oQk ouBk ns/ ;zy/g ouBk dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.

CO4: xo/b{ ns/ d|soh fuZmh gZso fbyD dk wB'oE ftfdnkoEhnK B{z fJ; ebk ftu fBg[zB eoBk j? I nykD ns/ w[jkto/ dh tos'A Bkb rZbpks ftu gogZesk nkT[Adh j?.fJj ftfdnkoEhnK dh rZbpks ftu fByko fbnkT[D dk ezw eoBr/.

BASIC PUNJABI
In lieu of Punjabi(Compulsory)
COURSE CODE - BECL-2031

;wK L 3 xzN/   **Maximum Marks: 100**

L-T-P   **Theory   : 80**

 4-0-0   **CA   :**
20

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ eZ[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 16 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK

ftu eo ;edk j?.

gkmeqw

:{fBN-I

Ppd P/qDhnK L gSkD ns/ tos'A (BKt, gVBKt, fefonk, ftP/PD, fefonk ftP/PD, ;pzXe,

:'ie ns/ ft;fwe)   **16 nze**

:{fBN-II

gzikph tke pDso L w[ZYbh ikD gSkD

(T) ;kXkoB tke, ;z:[es tke ns/ fwPos tke (gSkD ns/ tos'A)

(n) fpnkBhnk tke, gqPB tkue tke ns/ j[ewh tke (gSkD ns/ tos'A)   **16 nze**

:{[fBN-III

g?oQk ouBk

;zy/g ouBk

                                                          16 nze

:{fBN-IV

fuZmh gZso (xo/b{ ns/ d|soh)

nykD ns/ w[jkto/ (fb;N Bkb BZEh j?)   **16 nze**

BACHELOR OF SCIENCE (ECONOMICS) (HONOURS)

(Credit Based Continuous Evaluation Grading System) (CBCEGS) (NEP-2020)

Four Year Degree Programme
Semester II

Session 2024-25
ENGLISH LANGUAGE AND LITERATURE-1
Course Code: BECL-2212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: change the narration and voice of sentences after understanding fundamental grammatical rules governing them through the study of "English Grammar in Use" by Raymond Murphy

CO 2: to learn to write personal letters and enhance the writing skills

CO 3: comprehend the meaning of texts and answer questions related to situations, episodes, themes and characters depicted in them through the study of the stories in the text "Tales of Life".

CO 4: appreciate the writings of various Indian and foreign story and Short - Story writers and relate them to their socio-cultural milieu through the study of the stories in the text "Tales of Life".

BACHELOR OF SCIENCE (ECONOMICS) (HONOURS)
(Credit Based Continuous Evaluation Grading System) (CBCEGS) (NEP-2020)

Four Year Degree Programme
Semester II
Session 2024-25
ENGLISH LANGUAGE AND LITERATURE-1
Course Code: BECL -2212

Examination Time: 3 Hr   **Total Marks: 100**
L-T-P (Credits): 4-0-0   **Theory: 70**
                                                                              CA: 30

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four
Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are
required to attempt five questions, selecting at least one question from each Section. The fifth
question may be attempted from any Section.
(14x5=70)

The syllabus is divided in four sections as mentioned below.
SECTION–A
English Grammar in Use, 5th Edition by Raymond Murphy, CUP (Units: 49-81)

SECTION–B
Personal letter Writing and English Grammar in Use (Units: 82-97)

SECTION–C
Tales of Life (Guru Nanak Dev University, Amritsar): Stories at Sr. No. 1, 2, 3, 5 and 6

SECTION–D

Tales of Life (Guru Nanak Dev University, Amritsar): Stories ar Sr. No. 7, 9, 10, 11, 12

Texts Prescribed:
1.   *English Grammar in Use* (5th Edition) by Raymond Murphy, CUP
2.   *Tales of Life* (Guru Nanak Dev University, Amritsar)

Bachelor of Science (Economics) Semester –II
Session 2024-25
Course Code: BECL-2175
Economics (Macroeconomics)

Course outcomes:

After passing this course, students will be able to:

CO1: learn the determination of equilibrium in the economy using Classical and Keynesian models and understand the consumption behaviour of an economy.

CO2: understand the investment behaviour of an economy and different theories of the trade cycle.

CO3: understand the nature, functions and theories of money

CO4: understand the causes and solution to the problem of inflation and study the macroeconomic policies.

Bachelor of Science (Economics) Semester –II
Session 2024-25
Course Code: BECL-2175
Economics (Macroeconomics)

Time: 3 Hours

Note: Instructions for the Paper–Setter:
Two questions, each carrying 14 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I
Distinction between Micro and Macro Economics; Say's Law of Market and Aggregate Demand and Aggregate Supply, Determination of Income and Employment: Classical and Keynesian Models.
Consumption Functions; average (short-run and long-run) and marginal propensity to consume; Keynes' Psychological Law of Consumption, Multiplier: Static and dynamic multipliers.

UNIT–II
Investment: Meaning, Investment Demand Schedules and factors affecting investment decisions. Marginal Efficiency of Capital, Accelerator, Multiplier-Accelerator Interaction.
Trade cycles- Meaning, Characteristics and Phases

UNIT–III
Money: Its functions and role. Money and Capital Markets (Introductory); Quantity Theory of Money: Fisher's and Cambridge's Equations, Liquidity Preference Theory.

UNIT–IV
Inflation: Concept, Causes and Cures. Inflation-unemployment Trade-off (only Phillips' contribution).
Macroeconomic Policies: Introductory Fiscal and Monetary Policy.

Case Study: Monetary and Fiscal Policy of India

Suggested Readings:
1. Shapiro E. (2013), *Macroeconomic Analysis*, Galgotia Publications.
2. Dwivedi D.N. (2018), *Macroeconomics: Theory and Policy*, Tata McGraw-Hill, New Delhi.
Note: The latest editions of the books are recommended.

Course Outcomes

After the successful completion of this course, the students will be able to

CO 1: Solve linear equations of two variables and its applications in economics under the quadratic equations, arithmetic progression, geometric progression and their applications in economics.

CO 2: Develop understanding of elements of analytical geometry, straight lines, basic concepts of permutations and combinations.

CO 3: Differentiate between a constant and a variable, graph of linear and quadratic functions and its applications in economics.

CO 4: Recognize derivative of implicit functions, parametric functions, exponential functions, logarithmic functions and how to apply these derivatives in economics theory.

Bachelor of Arts/Bachelor of Science (Economics)
Semester-II
Session: 2024-25
Course title: Quantitative Techniques–II
Course Code: BARL-2453/BECL-2453

Examination Time: 3 Hours   Max. Marks: 100

L T P   Theory : 70

4-0-0   CA : 30

Note: Instructions for the Paper–Setters/Examiners:

Eight questions of equal marks (14 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

Solution of Linear Equations: Solution of Simultaneous Linear Equations (upto two variable case), Application of Linear Equation in Economics; Solution of Quadratic Equations Series: Arithmetic Progression Series, Geometric Progression Series and their applications in economics.

UNIT–II

Elements of Analytical Geometry: Straight line; Concepts of combination and permutation, Elements of set theory, union, intersection, difference, symmetric difference, complementation, Venn diagrams.

UNIT–III

Difference between a constant and a variable, concept of functions, classifications of functions, graph of linear and quadratic functions (Economic applications). Limits and continuity of a function. Concept of differentiation (ab -initio principle)

UNIT–IV

Derivatives (Excluding Trigonometric/and Inverse functions), Rules of derivatives; functions of functions rule; derivatives of implicit functions, parametric functions, exponential functions, logarithmic functions (Application in Economics).

Text Book:

C.S. Aggarwal, R.C. Joshi, Mathematics for students of Economics, New Academic Publishing Co., Jalandhar, Thirty first edition, 2016.

Reference Books:

1. G.S. Monga, Mathematics and Statistics for Economics, Sangam Books Ltd, New edition, 1998.

2. T. Yamane, Mathematics for Economists (An Elementary Survey), Literary Licensing, LLC,2012.

3. R.G.D. Allen, Mathematical Analysis for Economists, Trinity Press, 2014.

4. E.T. Dowling, Introduction to Mathematical Economics, McGraw Hill Publisher, Third edition, 2011.

5. A.C. Chiang, K. Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill, New York, Fourth edition, 2017.

Bachelor of Science /Honours
Semester–II
Session: 2024-25

Course Title: Calculus
Course Code: BECL -2333

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand real number system, limit of a function, basic properties of limit, continuity, and classification of discontinuities & to apply it in real world problem.

CO 2: To Classify the difference between Hyperbolic and Inverse Hyperbolic functions and understand the concept of Taylor's and Maclaurin theorem with its applications.

 CO 3: Demonstrate Asymptotes and De Moivre's theorem (for integer and Rational index) and its applications, primitive nth roots of unity.

CO 4: To understand the concepts of definite integrals and their properties and Reduction Formulae & to apply in a wide variety of disciplines like Bio, Eco, Physics & Engineering.

Course Title: Calculus
Course Code: BECL -2333

Examination Time: 3 Hours   Max. Marks: 100
  L T P   Theory: 80
  4 0 0   CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Real number system and its order properties: lub, glb of sets of real numbers, Completeness property, Archimedean property, Dense property of Rational numbers, Limit of a function of real variable, Properties of Limits, Squeeze Theorem, Continuous function and classification of discontinuities, Differentiability of a function of real variable, Concavity and Convexity of function, Point of inflexion.

Unit-II

Derivatives of Hyperbolic and Inverse Hyperbolic functions, nth order derivatives, Leibnitz theorem on nth derivative and its applications, Taylor's and Maclaurin theorem with Lagrange formof remainder, Application of Taylor's theorem in error estimation; Taylor's series expansions of $Sinx, Cosx, e^{cosx}. logx$ etc. Indeterminate forms and L'Hopital rule.

Unit-III

Asymptotes, Horizontal Asymptotes, Vertical Asymptotes, Oblique Asymptotes, Asymptotes of general Rational Algebraic Curve with illustrations, Intersection of curve and its Asymptotes, de Moivre's theorem (for integer and Rational index) and its applications, primitive nth roots of unity.

Unit-IV

Integration of hyperbolic functions, Properties of definite integral, Reduction formulae of type

$\tan^n x\, dx, \int \cot^n x\, dx, \int \sec^n x\, dx, \int \cosec^n x\, dx, \int x\cos^n x\, dx, \int \cos^m x\, sinnx\, dx$, Reduction formulae of using rule of smaller index +1 of type
$\int_0^{\frac{\pi}{2}} \sin^n x \cos^n x\ dx, \int_0^{\frac{\pi}{2}} \cos^n x\, dx, \ \int_0^{\frac{\pi}{2}} \sin^n x\, dx$

Text Books:-
1. S. Narayan and P.K.Mittal: Integral Calculus.Sultan Chand & Sons.

2. Gorakh Prasad, Differential Calculus (19th ed.). Pothishala Pvt. Ltd. Allahabad,2016.

Reference Books:-
1. Tom M.A postol, Calculus: An Indian Adaptation, Wiley India,2023.
2. MurrayR.Spiegel, Theory and Problems of Advanced Calculus, Schaum' soutlineseries, Schaum Publishing Co.NewYork.

Bachelor of Arts/ Bachelor of Science /Honours
Semester–II

Session: 2024-25

Course Title: Calculus Laboratory

Course Code: BARP/ BECP/ BCSP/ BSNP-2333

Examination Time: 3 Hours   Max. Marks: 25

                                                                         Practical: 20
L T P   CA :5
0 0 1

List of Practicals (using any package)

1. Plotting graphs of elementary functions eax+b sin(bx+c) , log(ax+b), 1/(ax+b), sin(ax+b),cos(ax+b), |ax+b| and to illustrate the effect of a and b on the graphs.
2. Plotting the graphs of the polynomial of degree 4 and 5, the derivative graph, the second derivative graph
3. Tracing of conics in Cartesian coordinates and using the general equation of second degreein x and y.
4. Tracing of conicoids: Ellipsoid, Hyperbolic paraboloid, Elliptic paraboloid, Hyperboloid ofone and two sheets etc.
5. Graphs of hyperbolic functions.
6. Approximation of limit.
7. Approximations of derivatives.

 Reference Books:-

1. S.S. Sastry, Engineering Mathematics -Volume I (4th Edition), PHI, 2008.
2. S.S. Sastry, Engineering Mathematics -Volume II (4th Edition), PHI, 2008.

Bachelor of Science (Economics) Hons. Semester- II
(Session 2024-25)
Course Code: BECM-2134

COMPUTER SCIENCE
(PROGRAMMING IN C)

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the working of various programming constructs involved in C Programming.

CO2: Apply various operators and control sequence of program using various control statements.

CO3: Apply programming concepts such as arrays, functions and strings to provide solution in different problem domains.

CO4: Work with pointers, structures and union.

Bachelor of Science (Economics) Hons. Semester- II
(Session 2024-25)
Course Code: BECM-2134

COMPUTER SCIENCE
(PROGRAMMING IN C)
(Theory)

Examination Time: 3 Hrs.　　　　　　　　　　　**Max. Marks: 100**
　　　　　　　　　　　　　　　　　　　　　　　　Theory:　40
L-T-P: 3-0-1　　　　　　　　　　　　　　　　　**Practical: 30**
Credits: 4　　　　　　　　　　　　　　　　　　**CA: 30**

Instructions for Paper Setter -

Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Data Representation, Introduction to Number Systems and Character Set, Decision tables, Decision Trees, Flow Charts, pseudo codes and, algorithms.

Programming Using C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors Data Types: Basic & Derived Data Types, User Defined Data Types, Declaring and initializing variables.

UNIT–II

Operators and Expressions: Types of operators (Unary, Binary, Ternary), Precedence and Associativity.

Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions.

Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled, difference between for, while and do–while.

UNIT–III

Arrays: Types of Arrays, One Dimensional and Two-Dimensional Arrays.

Strings: Introduction to Strings and String functions, array of strings.

Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

UNIT-IV

Storage Classes: Introduction to various storage classes, scope and lifetime of a variable, advantages and disadvantages.

Pointers: Introduction, Uses of pointers, Limitations of pointers, Difference between void pointer and Null pointer, Pointer arithmetic, operators not allowed on pointers, Types of Pointer, Passing Pointers to function, concept of pointer to pointer.

Structure and Union: Introduction to structure and union, pointers with structure.

References:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.

2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.

3. Rachhpal Singh K.S. Kahlon, Gurvinder Singh, Programming in C, Kalyani Publishers (2011).

4. YashwantKanetkar, Let us C, BPB Publications (2020), 17th edition.

5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.

6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

COMPUTER SCIENCE
(PROGRAMMING IN C)
(PRACTICAL)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                          Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Lab based on Programming in C.

Bachelor of Arts / Bachelor of Science (Economicsi) Semester II

(Session 2024-25)
COURSE CODE: BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON)

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the working of various programming constructs involved in Python Programming.

CO2: Apply various operators and control sequence of program using various control statements.

CO3: Apply programming concepts such as list, tuples, dictionaries, functions and strings to provide solution in different problem domains.

CO4: Perform debugging and exception handling.

Bachelor of Science(Economics) Semester II

Session 2024-25
COURSE CODE: BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                                          Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Instructions for Paper Setter -

Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Problem Solving, Problem Analysis, Concept of writing an algorithm, drawing a flowchart, developing a program.
Introduction to Python: Python's features, Story behind the name, Python versions, Execution environments: the Python Interpreter and IDEs (e.g. PyCharm or VSCode), Getting and Setting up Python.
Python program structure: Writing your first "Hello World" program; creating, saving and executing a program; comments, Indentation.

UNIT II

Data and Expressions: Literal Constants, numbers, strings – immutable strings, quotes, the escape sequence, the format methods. Variables and Identifiers, data-types, object,

Operators & Expressions: shortcuts, evaluation order, Boolean Expressions (Conditions), Logical Operators. User Input/output.

Control Flow: Selection Control, Nested conditions, Loops, break and Continue Statements, Data Structures: list, tuple, dictionary and set; basic operations e.g. creating, indexing, slicing, membership

UNIT III

Functions: defining and calling functions, passing and returning values, local and global variables, recursive functions, Iteration vs. Recursion.
Modules: purpose and usage, the import statement, from – import statement, the __main__ attribute, creating a module and importing, the dir() function.

Handling Exceptions: try..catch and with statements, errors, debugging.
UNIT IV

Files and Strings: Opening Files, Using Text Files, Reading files, Writing files, Understanding read functions, Understanding write functions.
Introduction to numpy and pandas for data processing.

References:

1. Yashavant Kanetkar, Aditya Kanetkar, Let Us Python-6th Edition, BPB Publications.
2. Charles Dierbach, Introduction to Computer Science Using Python: A Computational Problem-Solving Focus, Wiley Publications.
3. Martin C. Brown, Python: The Complete Reference, Indian Edition, McGraw Hill Education (India) Private Limited
4. Mark J. Guzdial, Introduction to Computing and Programming in Python, Pearson Education.

Note: The latest editions of the books should be followed.

Bachelor of Science(Economics) Semester II

Session 2024-25
COURSE CODE: BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON) (PRACTICAL)

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                               Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Instructions for the examiners: - Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Programming exercises based on:

- Use the Python interactive interpreter
- Getting familiar with a Python IDE
- Python fundamentals, data types, operators
- Operators, flow control using if, else and elif, While statement, loops using For, Loop Patterns
- Implementation of different collections like list, tuple and dictionary and their various functions
- Demonstrating creation of functions, passing parameters and return values
- Working with modules
- Handling Exceptions
- Implementation of reading, writing and organizing files
- Basic numpy and pandas functions

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
SCHEME AND CURRICULAM OF EXAMINATION OF THREE YEAR DEGREE PROGRAM
Bachelor of Science (Economics)
Session: 2024-2025
Semester III

Course Code	Course Name	Course Type	Hours Per Week L-T-P	Credits L-T-P	Total Credits	Total Marks	L Marks	P Marks	CA Marks	Examination time (in Hours)
BECL-3421 BECL-3031 BECL-3431	Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4	4-0-0	4	100	80	-	20	3
BECL-3212	English (Compulsory)	C	4	4-0-0	4	100	80	-	20	3
BECL-3175	**Economics** (Indian Economy)	C	4-0-0	4-0-0	4	100	80		20	3
BECL-3453	**Quantitative Techniques** (Quantitative Techniques-III)	E	4-0-0	4-0-0	4	100	80	-	20	3
BECM-3333	I **Mathematics** (Analysis)	E	7-0-0 (4-0-0 + 3-0-0)	7-0-0	7	175 (100 + 75)	140 (80 + 60)		35 (20+ 15)	3+3
	II **Mathematics** (Analytical Geometry)									
BECM-3134	**Computer Science** (Computer Oriented Numerical and Statistical Methods)	E	3-0-2	3-0-1	4	100	50	30	20	3+3
	P **Computer Science** (Computer Oriented Numerical and Statistical Methods) (PRACTICAL)									
BECM-3124	**Computer Applications (Vocational)**(Operating System)	E	3-0-2	3-0-1	4	100	50	30	20	3+3
	P **Computer Applications** (Operating System (PRACTICAL)									
AECE-3221	*Environmental Studies (compulsory)	AC	1-0-2	1-0-1	2	50	30	10	10	3
SECP-3512	* Personality Development	AC	0-0-2	0-0-4	2	50		40	10	1

C-Compulsory
E-Elective
AC- Audit Course
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
*Marks of these papers will not be added in total marks and only grades will be provided.

COURSE OUTCOMES

CO1: 'u'Dt/ gzikph fBpzX' Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo वारतव gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j?.

CO2: ';wK wzr eodk j?' fJeKrh ;zrqfj Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo fJeKrh gVQD dh o[uh Bz{ g?dk eoBk j? ns/ fJ; ;kfjs o{g Bkb i'VDk j?.

CO3: ;zy/g ouBk eoB Bkb ftfdnkoEh nkgDh rZb B{z ;zy/g ftu efjD dh iku f;;ZyDr/ ns/ fJj fdwkrh e;os ftu ;jkJh j't/rh.b/y ouBk dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.

CO4: w{b ftnkeoDe fJekJhnK L gfoGkPk ns/ tzzBrhnK (GktzP, Ppd, tkezP, T[gtke ns/ tke)Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo GkPk dh nwhoh ns/ pkohehnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?.

;wK L 3 xzN/	**Maximum Marks: 100**
L-T-P	**Theory : 80**
4-0-0	**CA :20**

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[Zb gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 16 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr' AtZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.

gkmeqw ns/ gkm g[;seK

:{fBN-I

u'Dt/ gzikph fBpzX (i'frzdo f;zx g[nko,gowihs f;zx f;ZX{), gzikph :{Bhtof;Nh,gfNnkbk.

xo dk fgnko, T[wo bzwh j' ;edh j?,nZEo{, g[okDk gzikp, fJzrb?Av dk ;'rh ;'wtko,fyvkohnK d/ tfjw.

(gkm eqw dk fjZ;k jB)

(ftPk t;s{$;ko /ebk gZy)   16 nze

:{fBN-II

;wK wzr eodk j? (fJeKrh ;zrqfj) (**ਸੰਪਾ. ਕੇਵਲ ਧਾਲੀਵਾਲ**) u/sBk gqekPB,b[fXnkDk.

(ftPk t;s{ $;ko / gkso fusoB)   16 nze

:{fBN-III

(T) ;zy/g ouBk (gq?;h)

(n) b/y ouBk   16 nze

:{fBN-IV

w{b ftnkeoDe fJekJhnK L gfoGkPk ns/ tzzBrhnK (GktzP, Ppd, tkezP, T[gtke ns/ tke)

16 nze

Course outcomes

CO1: ;zy/g ouBk eoB Bkb ftfdnkoEh nkgDh rZb B{z ;zy/g ftu efjD dh iku f;ZyDr/ ns/ fJj fdwkrh e;os ftu ;jkJh j't/rh.g?oQk gVQ e/ gqPBK d/ T[so d/D dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.

CO2: eftsk Gkr Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo eftsk gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j? sK fe T[j nkX[fBe d''o ftu uZb ojhnK ekft XkoktK ns/ ethnK pko/ frnkB jkf;b eo ;eD.

CO3: ejkDh Gkr Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo ejkDh gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j? sK fe T[j nkX[fBe d''o ftu uZb ojhnK ekft XkoktK ns/ ethnK pko/ frnkB jkf;b eo ;eD.

CO4: fBpzX Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo gVQD dh o[uh Bz{ g?dk eoBk j? ns/ w[ZZbtkB fJfsjkf; s'A ikD{ eotkT[Dk j?.

Basic Punjabi (In lieu of Punjabi Compulsory)
COURSE CODE- BECL -3031

;wK L 3 xzN/   **Maximum Marks: 100**

   L-T-P   **Theory : 80**
4-0-0
CA   : 20

nze tzv ns/ gohfyne bJh jdkfJsK

1H   **gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.**

2H   **ftfdnkoEh B/ eZ[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?.gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.**

3H   **jo/e gqPB d/ 16 nze jB.**

4H   **g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.**

                                    gkmeqw

                                    :{fBN-I

g?oQk gVQ e/ gqPBK d/ T[so

;zy/g ouBk   **16 nze**

                                    :{fBN-II

eftsktK

(T) ;wK (GkJh tho f;zx)

(n) y?o gzikph dh (|ho'IdhB Po|)

(J) \Brkjh dhtk pkbdhJ/ (gq'Hw'jB f;zx)

(;) o[Zy (fPt e[wko)

(gq;zr ;fjs ftnkfynk,;ko)   **16 nze**

                                    :{fBN-III

ejkDhnK

(T) G{nk (BkBe f;zx)

(n) g/wh d/ fBnkD/ (fgqzzH ;zs f;zx ;/y'A)

(J) e[b|h (;[ikB f;zx)

(;) Xosh j/mbk p"bd(e[btzs f;zx ftoe)

(ftPk t;s{,;ko)   **16 nze**

:{fBN-IV

fBpzX

(T) xo dk fgnko (s/ik f;zx)

(n) wK (r[op\P f;zx)

(J) GkJh wodkBk ih (jogkb f;zx gzB{)

(;) wB[Zy e[dos dh B/e n"bkd BjhA (;[fozdo wzv)

 (ftFPk t;s{,;ko)   **16 nze**

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: comprehend the basics of grammatical rules governing relative clauses, adjectives, adverbs, conjunctions and prepositions through the study of "English Grammar in Use" by Raymond Murphy

CO 2: develop skills to write an essay on a given topic and enhance their vocabulary through the study of "The Students' Companion" by Wilfred D. Best

CO 3: enhance their reading and analysing power of texts through guided reading through the study of "Making Connections" by Kenneth J. Pakenham

CO 4: develop an understanding of the poems taught, relate to the socio-cultural background of England and be able to answer questions regarding tone, style and central idea through the study of the poems in the prescribes text "Moments in Time"

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BACHELOR OF SCIENCE (ECONOMICS)
SEMESTER - III
Session 2024-25
ENGLISH (COMPULSORY)
Course Code: BECL -3212

Examination Time: 3 Hr   **Total Marks: 100**
L-T-P (Credits): 4-0-0   **Theory: 80**
                                                                                          CA: 20

Instructions for the Examiner:
(The paper setters should avoid questions of theoretical nature from *Making Connections*.)

Section A: One question with sub-parts will be set from Unit I of the syllabus. Fifteen sentences will be set and the students would be required to attempt any ten. Each sentence will carry two marks. **(10×2=20)**

Section B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one essay out of the given two topics carrying ten marks (word limit 400 words). The second question will be based on vocabulary. The students would be required to write single words for phrases and sentences choosing any five out of eight and each carrying two marks. **(1×10 + 5×2=20)**

Section C: The students would be required to attempt two questions (with sub parts) based on exercises as given before and after reading essays in the prescribed text book *Making Connections*. **(5×2 + 5×2=20)**

Section D: This section will be divided into two parts. In part one, five questions based on Central idea, theme, tone and style etc. of the poems from the prescribed textbook, *Moments In Time* from Unit IV of the syllabus will be set. The students would be required to attempt any three, each carrying five marks (200 words each). **(3×5=15)**
Part two will have one question (with internal choice) requiring students to explain a stanza with reference to context carrying five marks (word limit 250 words). The stanzas for explanation will be taken from the prescribed textbook, *Moments in Time* from Unit IV in the syllabus. **(1×5=5)**

Unit I
English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units 92-120)
Unit II
Essay Writing and *The Students' Companion* by Wilfred D. Best (Section 1: Single words for phrases and sentences: Words denoting Numbers and words denoting Places)
Unit III
Making Connections by Kenneth J. Pakenham, 2nd Edn. CUP: Unit-II
Unit IV
Moments in Time: Poems at Sr. No. 1-6

Texts Prescribed:
1.   *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP
2.   *The Students' Companion* by Wilfred D. Best
3.   *Making Connections* by Kenneth J. Pakenham, 2nd Edn. CUP
4.   *Moments in Time: An Anthology of Poems*, GNDU, Amritsar

Bachelor of Science (Economics) Semester –III
Session 2024-25
Course Code: BECL-3175
Economics (Indian Economy)

Course Outcomes:
After passing this course, students will be able to:

CO1: understand the nature, importance and problems of Indian agriculture and new agriculture strategy and WTO agreements related to Indian agriculture.

CO2: Critically understand the industrial development in India, the role of the public and private sectors, the cottage and small industries, and the latest industrial policy.

CO3: understand the composition, direction, and volume of international trade along with the balance of payment problems and the role of foreign capital MNCs.

CO4: understand major economic problems of the Indian economy, Indian Taxation System, and Indian economic planning – its objectives, strategy and evaluation.

Time: 3 Hours

L-T-P (Credits):4-0-0
Max. Marks: 100
Theory: 70
CA: 30

Note: Instructions for the Paper–Setter:

Two questions, each carrying 14 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT- I

Nature of Indian Economy; Agriculture in India: Nature and Importance of Agriculture, Causes of Decline in Productivity, Sustainable Agricultural Growth, Green Revolution and New Agricultural Strategy, WTO and Indian Agriculture (Introductory).

UNIT- II

Industry: Performance and Problems of Industrial Development; Public Sector versus Private Sector, Role of Privatization, Role of Small and Cottage Industries, Latest Industrial Policy.

UNIT- III

Foreign Trade: Direction and Composition of Exports and Imports since 1991; Recent Foreign Trade Policy, Balance of Payment Problem, Foreign Capital and Multinational Corporations in India Economic Reforms and its implications.

. UNIT- IV

Features of Population Growth in India, Major Problems of the Economy – Inflation, Unemployment, Poverty and Inequality, Current Indian Tax Structure. Planning- Objectives, Strategy, Evaluation of Planning in India; A Brief Idea of Objectives, Targets, Resources of the Latest Five Year Plan (Twelfth Five Year Plan).

Case Study: Population dynamics and nature of the unemployment problem in Punjab

Suggested Readings:

1. Mishra, S.K. and Puri, V.K. (2019), *Indian Economy,* Himalaya Publication House, Mumbai.
2. Dutt, R. and Sundharam, *K.P.M.* (2018), *Indian Economy,* S. Chand & Co. Ltd., New Delhi.
3. Aggarwal, A. N. (1975), *Indian Economy,* Vikas Publishing House, Delhi.
 4. Wadhwa, C. D. (1980), *Indian Economic Policy,* Tata McGraw Hill, Bombay.

Note: The latest editions of the books are recommended.

Bachelor of Science (Economics) Semester –III
Session 2024-25
Course Code: BECL-3453
Quantitative Techniques (Quantitative Techniques–III)

Course outcomes:

After passing this course, students will be able to:

CO1: understand and apply the concept of differentiation in economic applications such as profit maximization, cost minimization or utility optimization.

CO2: understand and apply the concept of indefinite and definite integrals to economic concepts like consumer and producer surplus.

CO3: explain and use matrix operations to solve the system of equations.

CO4: understand the basics of linear programming for the efficient computation of optimal solutions to problems in decision-making.

Bachelor of Science (Economics) Semester –III
Session 2024-25
Course Code: BECL-3453
Quantitative Techniques (Quantitative Techniques–III)

Time: 3 Hours

L-T-P (Credits):4-0-0
Max. Marks: 100
Theory: 80
CA: 20

Note: Instructions for the Paper–Setter:

Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I

Differentiation: Maxima and Minima of Functions, Partial derivatives, higher order partial derivatives.

UNIT–II

Integration (Excluding Trigonometric and Inverse Functions): Indefinite Integrals; Integration by Partial Fractions; Integration by substitution; Integration by parts; Definite Integrals; Application of Integration in Consumer Surplus and Producer Surplus.

UNIT–III

Matrices: Definition, Types, Addition, Subtraction, and Multiplication of Matrices; Scaler Multiplication; Transposition; Determinants and their Properties; Minors and Co-factors; Rank of a Matrix; Inverse of a Matrix; Crammer's Rule for Solution of Simultaneous system of equations; Applications of matrices in economics.

UNIT–IV

Linear Programming: Formulation of problem, Assumptions, Graphical solution, Simplex method, Use of Artificial Variables, Dual Simplex method. Input-Output Analysis: Basic concepts, Input-Output tables for closed and open economies, Leontief Basic Input-Output Model, Simple Applications of Input-Output Analysis.

Suggested Readings:

1. Rangi, S.S. and Chowdhary, V. (2013), *Mathematical Techniques*, S. Vikas s& Co. Publishing House, India.
2. Allen, R.G.D.(1938), Mathematical Analysis for Economists, ELBS and Macmillan Press, New York.
3. Chiang, A.(1967), Fundamental Methods of Mathematical Economics, McGraw Hill.
Note: The latest editions of the books are recommended.

Bachelor of Arts/ Bachelor of Science (Economics, Non-Medical, Computer Science)
Semester-III
Session: 2024-25
Course Title: Mathematics (Analysis)
Course Code: BECM -3333(I)

Course Outcomes

After passing this course, the students will be able to:
CO 1: Demonstrate an understanding of limits and how they are used in sequences.
CO 2: Understanding how limits are used in series and apply various test on series.
CO 3: To understand the concepts of Riemann sum, partitions, upper and lower sums, Riemann Integrability of continuous functions and of monotone functions. Distinguish between the absolute convergence and conditional convergence.
 CO 4: To know and describe the converging behaviour of improper integrals and Beta , Gamma functions. To find the relation between Beta and Gamma functions.

Bachelor of Arts/ Bachelor of Science (Economics, Non-Medical, Computer Science)
Semester–III
Session: 2024-25
Course Title: Mathematics (Analysis)
Course Code: BECM -3333(I)

Examination Time: 3 Hrs   Max. Marks: 100
L T P

4 0 0   Theory: 80

                                                                               CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion.

Unit-II

Series of non-negative terms. Comparison tests. Cauchy's integral tests. Ratio tests. Cauchy's root test. Raabe's test, logarithmic test. Demorgan's and Bertrand's tests. Kummer's test, Cauchy Condensation test, Gauss test, Alternating series. Leibnitz's test, absolute and conditional convergence

Unit-III

Partitions, Upper and lower sums. Upper and lower integrals, Riemann integrability. Conditions of existence of Riemann integrability of continuous functions and of monotone functions. Algebra of integrable functions.

Unit-IV

Improper integrals and statements of their conditions of existence. Test of the convergence of improper integral, beta and gamma functions.

Text Book:
   A. Kumar and S. Kumaresan, A Basic Course in Real Analysis, CRC Press, New York, 2014.

Reference Books:
1.S. C Malik and S. Arora, Mathematical Analysis, New Age international Publishers, New Delhi, second edition, 2005.
2.T. M. Apostal, Mathematical Analysis, Pearson education, second edition, 2004.

Bachelor of Arts/ Bachelor of Science (Economics)
Semester–III
Session: 2024-25
Course Title: Mathematics (Analytical Geometry)
Course Code: BECM -3333(II)

Course Outcomes
After passing this course, the students will be able to:
CO 1: Understand the concept of the geometry of lines, shifting of origin and rotation of axis in the Euclidian plane.
CO 2: Develop geometry with a degree of confidence and will gain fluency in the basics of parabola in Euclidian geometry.
CO 3: Demonstrate the concept of ellipse and hyperbola in general quadratic equation.
CO 4: Understand the concept of geometry and real time characteristics of plain and spheres.

Course Title: Mathematics (Analytical Geometry)
Course Code: BECM -3333(II)

Examination Time: 3 Hours   Max. Marks: 75

L-T-P   Theory: 60

3 0 0
CA:15

Instructions for the Paper Setter: Eight questions of equal marks (12 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Transformation of axes, shifting of origin, Rotation of axes in two dimension and three dimensions, the invariants, Joint equation of pair of straight lines, equations of bisectors

Unit-II

Parabola and its properties. Tangents and normal, Pole and polar, pair of tangents at a point, Chord of contact, equation of the chord in terms of mid-point and diameter of conic.

Unit-III

Ellipse and hyperbola with their properties. Tangents and normal, Pole and polar. pair of tangents at a point, Chord of contact, Identifications of curves represented by second degree equation (including pair of lines).

Unit-IV

Intersection of three planes, condition for three planes to intersect in a point or along a line or to form a prism. Sphere: Section of a sphere by a plane, spheres of a given circle. Intersection of a line and a sphere. Tangent line, tangent plane, power of a point with respect to a sphere, radical planes.

Text Book:
S.L. Loney, The Elements of Coordinate Geometry, Arihant Publications, Sixth edition, 2016.

Reference Books:
1.   G. Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Private Limited, Allahabad, 2000.
2.   S. Narayan and P.K. Mittal, Analytical Solid Geometry, S. Chand & company, Seventeenth edition, 2007.

3.   E. Kreyszig, Advanced Engineering Mathematics, Wiley Publisher, Tenth edition, 2010.
4.   G.B. Thomos, and R.L. Finney, Calculus and Analytic Geometry, Addison Wesley, Ninth edition, 1995.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code: BECM-3134

COMPUTER SCIENCE

(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)

Course Outcomes:

After passing this course the student will be able to:

CO1: Solve non-linear and linear equations using different methods.

CO2: comprehend interpolation and numerical integration.

CO3: Calculate different means and deviations using statistical techniques.

CO4: Comprehend correlation, curve fitting and regression for finding solutions to various statistical problems.

Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code: BECM-3134

COMPUTER SCIENCE

(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)

(THEORY)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**

Theory: 50

L-T-P: 3-0-1   **Practical:30**

Credits: 4   **CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non– storage type calculator.

Unit –I

Introduction: Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors. Bisection method, false position method and Newton Raphson method.

Simultaneous Solution of Equations: Gauss Elimination Method, Gauss Jordan method

Unit -II

Interpolation: Interpolation and Curve Fitting, Newtons Methods: Forward Difference Method, Backward Difference Method and Divided Difference Method.

Numerical Integration: Trapezoidal Rule, Simpson's 1/3 Rule Simpson's 3/8 Rule.

Unit -III

Measure of Central Tendency: Mean Arithmetic, Mean Geometric, Mean Harmonic, Mean, Median and Mode.

Measure of dispersion: Range, Mean deviation, Standard deviation, co-efficient of variation.

Unit –IV

Correlation: Meaning, Karl Pearson method, Rank correlation.

Regression: Meaning, Linear Regression and its coefficients.

References/ Textbooks:

1. B.S. Grewal, Numerical Methods in Engineering & Science: With Programs in C, C++ & MATLAB, Khanna Publisher, 2014.
2. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall of India Private Ltd., 2009.

Note: The latest editions of the books should be followed.

Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code: BECM-3134

COMPUTER SCIENCE

(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)

PRACTICAL

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                        Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Computer Oriented Numerical and Statistical Methods.

Bachelor of Arts / Bachelor of Science(Economics) Semester III

Session 2024-25
COURSE CODE: BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)

Course Outcomes:

After passing this course the student will be able to:

CO1: Describe, contrast and compare different types of Operating System.

CO2: Analyze CPU scheduling and memory management policies.

CO3: Comprehend about deadlock along with its prevention and detection.

CO4: Apply commands to perform various tasks in Linux operating system.

Bachelor of Arts / Bachelor of Science(Economics) Semester III

Session 2024-25
COURSE CODE: BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(THEORY)

Examination Time: 3 +3 Hrs.	**Max. Marks: 100**
	Theory: 50
L-T-P: 3-0-1	**Practical:30**
Credits: 4	**CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Introduction to Operating System, Types of Operating systems: Multiuser, Multitasking and Multiprogramming, Functions of Operating System, Booting a System, Language Processors: Compiler, Assembler, Interpreter, Linker and Loader.

UNIT-II
CPU Scheduling: Basic concepts, Scheduling Algorithms, Evaluation: Turnaround Time, Waiting Time.

Memory Management: Logical address space and physical address space, schemes.

Introduction to File Management, I/O Device Management, Data Management.

UNIT-III
Deadlocks: System Model, Deadlock characterization, Methods for handing deadlocks, Deadlocks Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Approach to Deadlock handling.

UNIT–IV
Linux: Introduction, Features, Architecture of linux (Kernel, Shell)
Linux Commands: cat, cd, chmod, chown,cp, ls, mkdir, mv, rmdir, rm,mv, sort, ln,df, echo, exit, find, free, whoami, grep ,cal, who, pwd.
Introduction to Vi Editor, **commands:** opening, inserting, modifying, deleting and saving files.

References:

1. AviSilberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts, Wiley, 2013.

2. Charles Crowley, Operating Systems: A Design-Oriented Approach, Tata McGraw Hill, 2001.

3. Deitel, An Introduction to Operating Systems, Second Edition, Addison Wesley, 1990.

4. William Stallings, Operating Systems: Internals and Design Principles, Pearson Education Limited, 2014.

5. Anshuman Sharma, Fundamentals of Operating System, Lakhanpal Publishers, 2nd Edition.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester III

Session 2024-25
COURSE CODE: BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(PRACTICAL)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                          Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical based on Operating System.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
SCHEME AND CURRICULAM OF EXAMINATION OF THREE YEAR DEGREE PROGRAM
Bachelor of Science (Economics)
Session: 2024-2025
Semester IV

Course Code		Course Name	Course Type	Hours Per Week L-T-P	Credits L-T-P	Total Credits	Total Marks	L Marks	P Marks	CA Marks	Examination time (in Hours)
BECL-4421 BECL-4031 BECL-4431		Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4	4-0-0	4	100	80	-	20	3
BECL-4212		English (Compulsory)	C	4	4-0-0	4	100	80	-	20	3
BECL-4175		**Economics** (International Economics and Public Finance	C	4-0-0	4-0-0	4	100	80		20	3
BECL-4453		**Quantitative Techniques** (Quantitative Techniques-IV)	E	4-0-0	4-0-0	4	100	80	-	20	3
BECM-4333	I	Mathematics Statics and Vector Calculus	E	7-0-0 (4-0-0 + 3-0-0)	7-0-0	7	175 (100 + 75)	140 (80 + 60)		35 (20+ 15)	3+3
	II	Mathematics Solid Geometry									
BECM-4134		**Computer Science** (Data Structures)	E	3-0-2	3-0-1	4	100	50	30	20	3+3
	P	**Computer Science** (Data Structures) (PRACTICAL)									
BECM-4124		**Computer Applications (Vocational)** (Relational Database Management Systems)	E	3-0-2	3-0-1	4	100	50	30	20	3+3
	P	**Computer Applications** (Relational Database Management Systems) (PRACTICAL)									
SECS-4522		*Social Outreach	AC	2-0-0	2-0-0		50	40		10	1

C-Compulsory
E-Elective
AC- Audit Course
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
*Marks of these papers will not be added in total marks and only grades will be provided.

COURSE OUTCOMES

CO1: 'grvzvhnK' (ਸਵੈਜੀਵਨੀ) Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo ਸਵੈ ਜੀਵਨੀ ;kfjs o{g gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j?.

CO2: 'ਫ਼ਾਸਲੇ' (ਨਾਟਕ) Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo ਨਾਟਕ Bz{ gVQD dh o[uh Bz{ g?dk eoBk j? ns/ ਨਾਟਕ irs Bkb i'VDk j?.

CO3: d|soh fuZmh gZso ns/ n\pko ftu fJPfsjko fbyDk f;ykT[D dk wB'oE ftfdnkoEhnK B{z fJ; ebk ftu fBg[zB eoBk j? I

CO4: Ppd i'VK d/ fB:w B{z f;b/p; ftu Pkfwb eoB dk we;d ftfdnkoEhnK d[nkok fb\s ftu ehshnK ikD tkbhnK rbshnK B{z ;[XkoBk j?.r[ow[yh fbgh dhnK ftP/PsktK Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo gzikph GkPk dh nwhoh dk ns/ pkohehnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?.

;wK L 3 xzN/   **Maximum Marks: 100**
     L-T-P   **Theory**   **: 80**
     4-0-0   **CA**   **:20**

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 16 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr' AtZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.

gkmeqw ns/ gkm g[;seK

:{fBN-I

grvzvhnK (ਸਵੈਜੀਵਨੀ) : ਡਾ.pfuzs e''o

(;ko /ftPk t;s{ / nksw fpzp)   **16 nze**

:{fBN-II

ਫ਼ਾਸਲੇ (ਨਾਟਕ) :ifszdo pokV,

(ftPk t;e{$;ko /BkN i[rsK)   **16 nze**

:{fBN-III

(T) d|soh fuZmh gZso

    (n) n\pko ftu fJPfsjko   **16 nze**

:{fBN-IV

ftnkeoD

(T) Ppd i'VK d/ fB:w

(n) r[ow[yh fbgh dhnK ftP/PsktK   **16 nze**

Basic Punjabi (In lieu of Punjabi Compulsory)
COURSE CODE- BECL - 4031

Course outcomes

CO1: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਦੇ ਵਿਦਿਆਰਥੀ 'nksw nBksw' (eftsk Gkr) d/ ਨਾਮਵਰ ਕਵੀਆਂ w'jB f;zx,irsko,;[oihs gkso,gkP ਦੀਆਂ ਰਚਨਾਵਾਂ dh gq;zr ;fjs ftnkfynk ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

CO2: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਦੇ ਵਿਦਿਆਰਥੀ 'nksw nBksw' (eftsk Gkr) d/ ਵੱਖੋ ਵੱਖਰੀਆਂ ਧਾਰਾਵਾਂ ਨਾਲ ਸਬੰਧਤ w'jB f;zx,irsko,;[oihs gkso,gkP ਦੀਆਂ ਰਚਨਾਵਾਂ d/ ;ko ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

CO3: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਦੇ ਵਿਦਿਆਰਥੀ 'nksw nBksw' (eftsk Gkr) d/ ਵੱਖੋ ਵੱਖਰੀਆਂ ਧਾਰਾਵਾਂ ਨਾਲ ਸਬੰਧਤ w'jB f;zx,irsko,;[oihs gkso,gkP ethnK d/ ihtB ns/ ouBk ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

CO4: b/y ouBk dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.Ppd i'VK d/ fB:w B{z f;b/p/; ftu Pkfwb eoB dk we;d ftfdnkoEhnK d[nkok fb\s ftu ehshnK ikD tkbhnK rbshnK B{z ;[XkoBk j?.

;wK L 3 xzN/   **Maximum Marks: 100**

  L-T-P   **Theory   : 80**
 4-0-0   **CA**

: 20

nze tzv ns/ gohfyne bJh jdkfJsK

1H   **gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.**

2H   **ftfdnkoEh B/ eZ[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?.gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.**

3H   **jo/e gqPB d/ 16 nze jB.**

4H   **g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.**

gkmeqw

:{fBN-I

nksw nBksw (eftsk Gkr)(;zgkde vkH ;[fjzdo pho ns/ vkHtfonkw f;zx ;zX){

r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

w'jB f;zx,irsko,;[oihs gkso,gkP f;b/p; dk fjZ;k jB.

gq;zr ;fjs ftnkfynk

                                                                          16 nze

:{fBN-II

nksw nBksw (eftsk Gkr)(;zgkde vkH ;[fjzdo pho ns/ vkHtfonkw f;zx ;zX){

r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

w'jB f;zx,irsko,;[oihs gkso,gkP f;b/p; dk fjZ;k jB.

(;ko)

                                                                          16 nze

:{fBN-III

nksw nBksw (eftsk Gkr)(;zgkde vkH ;[fjzdo pho ns/ vkHtfonkw f;zx ;zX){

r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

w'jB f;zx,irsko,;[oihs gkso,gkP f;b/p; dk fjZ;k jB.

(ethnK d/ ihtB ns/ ouBk pko/ wZ[Ybh ikDekoh)

16 nze

:{fBN-IV

b/y ouBk

nP[ZX Ppd i'VK B{z P[ZX eoe/ fbyDk   16 nze

BACHELOR OF SCIENCE (ECONOMICS)

Semester IV
Session 2024-25
ENGLISH (COMPULSORY)
Course Code: BECL -4212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: comprehend the basics of grammatical rules governing prepositions and phrasal verbs through the study of "English Grammar in Use" by Raymond Murphy

CO 2: develop skills to write an essay on a given topic and enhance their vocabulary through the study of "The Students' Companion" by Wilfred D. Best

CO 3: enhance their reading and analysing power of texts through guided reading through the study of "Making Connections" by Kenneth J. Pakenham

CO 4: develop an understanding of the poems taught, relate to the socio-cultural background of England and be able to answer questions regarding tone, style and central idea through the study of the poems in the prescribes text "Moments in Time"

BACHELOR OF SCIENCE (ECONOMICS)
Semester IV
Session2024-25
ENGLISH (COMPULSORY)
Course Code: BECL -4212

Examination Time: 3 Hr   **Total Marks: 100**
L-T-P (Credits): 4-0-0   **Theory: 80**
                                                                                              CA: 20

 Instructions for the Examiner:
(The paper setters should avoid questions of theoretical nature from *Making Connections*.)
Section A: One question with sub-parts will be set from Unit I of the syllabus. Fifteen sentences will be set and the students would be required to attempt any ten. Each sentence will carry two marks. **(10×2=20)**

Section B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one essay out of the given two topics carrying ten marks (word limit 400 words). The second question will be based on vocabulary. The students would be required to write single words for phrases and sentences choosing any five out of eight and each carrying two marks.   **(1×10 + 5×2=20)**

Section C: The students would be required to attempt two questions (with sub parts) based on exercises as given before and after reading essays in the prescribed text book *Making Connections*.   **(5×2 + 5×2=20)**

Section D: This section will be divided into two parts. In part one, five questions based on Central idea, theme, tone and style etc. of the poems from the prescribed textbook, *Moments In Time* from Unit IV of the syllabus will be set. The students would be required to attempt any three, each carrying five marks (200 words each).   **(3×5=15)**
Part two will have one question (with internal choice) requiring students to explain a stanza with reference to context carrying five marks (word limit 250 words). The stanzas for explanation will be taken from the prescribed textbook, *Moments in Time* from Unit IV in the syllabus.   **(1×5=5)**

Unit I
English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units 121-145)
Unit II
Essay Writing and *The Students' Companion* by Wilfred D. Best (Section 1: Single words for phrases and sentences: Words pertaining to Government, words pertaining to Marriage, Opposites and Negatives)
Unit III
Making Connections by Kenneth J. Pakenham, 2nd Edn. CUP: Unit-IV
Unit IV
Moments in Time: Poems at Sr. No. 7-12
      Texts Prescribed:
      1.   *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP
      2.   *The Students' Companion* by Wilfred D. Best
      3.   *Making Connections* by Kenneth J. Pakenham, 2nd Edn. CUP
      4.   *Moments in Time: An Anthology of Poems*, GNDU, Amritsar

Bachelor of Science (Economics) Semester –IV
Session 2024-25
Course Code: BECL-4175
Economics (International Economics and Public Finance)

Course outcomes:

 After studying this course, students will be able to:

CO1: understand the basis of and gains from international trade and basic understanding of terms of trade and commercial policy and also WTO agreements related to trade.

CO2: understand the basic concept of BOP and methods to correct disequilibrium and determination of exchange rate.

CO3: understand the basics of public finance and public expenditure.

CO4: understand taxes and the burden of public debt.

Bachelor of Science (Economics) Semester –IV
Session 2024-25
Course Code: BECL-4175
Economics (International Economics and Public Finance)

Time: 3 Hours

L-T-P (Credits): 4-0-0
Max. Marks: 100
Theory: 80
CA: 20

Note: Instructions for the Paper–Setter:
Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I
International Trade: Internal and External Trade, Classical and Heckscher-Ohlin Theories, Gains from Trade, Terms of Trade (gross, net, and income terms of trade).Trade and economic development.
Commercial Policy: Free trade vs. protection, the rationale of a protectionist policy in a less developed area, GATT & WTO (Introductory).

UNIT–II
Balance of Payments: Meaning and components of balance of payments, Methods for Correcting adverse balance of payments, devaluation and direct control.
Rate of Exchange: Meaning and determination (PPP and BOP Theory), Fixed and flexible exchange rates.

UNIT–III
Public Finance: Nature, scope and importance.
Public Expenditure: Meaning, principles, importance, and effect of public expenditure on production and distribution.

UNIT–IV
Public Revenue: Meaning and Sources of Revenue -Tax and non-tax revenue, Features of a good taxation system, canons of taxation, incidence, and impact of taxation.
Public Debt: Meaning, objectives, importance, its burden.

Case Study: India's EXIM Policy

Suggested Readings:
1. Sodersten, B.O. (1970), *International Economics,* Macmillan, London.
2. Salvatore, D. and Reed, G. (1983), *International Economics,* Macmillan Publishing Company, New York.
3. Tyagi, B.P. (2004), Public Finance, Jai Prakash Nath & Company, Meerut.

Note: The latest editions of the books are recommended.

Course outcomes:

After passing this course, students will be able to**:**

CO1: understand the concept of correlation and regression and learn how to apply these statistical techniques in practice

CO2: understand the axiomatic formulation of modern probability theory and think of random variables as an intrinsic need for the analysis of random phenomena.

CO3: recognize the connection between theory and applications by appropriately fitting, assessing and interpreting the results/ outcomes

CO4: understand the basic principles underlying survey design and estimation.

Bachelor of Science (Economics) Semester –IV
Session 2024-25
Course Code: BECL-4453
Quantitative Techniques (Quantitative Techniques–IV)

Time: 3 Hours

L-T-P (Credits):4-0-0
Max. Marks: 100
Theory: 80
CA: 20

Note: Instructions for the Paper–Setter:

Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I

Multiple Linear Regression: Concepts, Estimation and Applications (without derivations). Partial and Multiple Correlation. Non-Linear Regression: Quadratic and Exponential; Estimation of Fitting of Various Growth Curves (Modified Exponential, Gompertz).

UNIT–II

Probability: Definition, Additive & Multiplicative Laws and their Applications, Bayes Theorem, Concept of Random Variable, Probability Mass Function & Density Function, Mathematical Expectation (meaning and properties), Moments, Moment Generating Function and Characteristic Function.

UNIT–III

Theoretical Probability Distributions: Derivations of the properties of Binomial (with numerical), Poisson (with numerical), Normal (with numerical), Beta and Gamma Distributions.

UNIT–IV

Sampling: Various concepts – Population, Sampling Units, Complete Enumeration sample Surveys, Concept of an Estimator and The Standard Error, Standard Error of Estimates. Features of a Good Sample, Random and Subjective Sampling, Simple Random Sampling (with and without replacement), and Stratified Random Sampling (applications only).

Practical: Correlation and Regression with Statistical Softwares

Bachelor of Science (Economics, Non-Medical, Computer Science)
Semester–IV
Session: 2024-25
Course Title: Mathematics (Statics and Vector Calculus)
Course Code: BECM -4333(I)

Course Outcomes

After passing this course, the students will be able:

CO 1: To apply parallelogram law of forces, triangle law of forces, Lami's theorem to real life problems and also understand that how one can resolve number of coplanar forces, parallel forces and concurrent forces acting at a body.

CO 2: To find the applications of CG of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

CO 3: To find the values of gradient, divergence and curl operator of given vectors

CO 4: To find the application of Gauss theorem, Green's theorem and Stokes's theorem in real life problems.

Bachelor of Arts/ Bachelor of Science (Economics)
Semester–IV
Session: 2024-25
Course Title: Mathematics (Statics and Vector Calculus)
Course Code: BECM -4333(I)

Examination Time: 3 Hours   Max. Marks: 100

L-T-P   Theory: 80

 4 0 0
CA:20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Composition and resolution of forces (parallelogram law, triangle law, polygon law, Lami's Theorem(ʒ-µ) theorem). Resultant of a number of coplanar forces, parallel forces. Moments ,Varignon's Theorem of moments, Couples , Resultant of two Coplanar Couples, Equilibrium of two coplanar couples, Resultant of a force and a couple, Equilibrium of coplanar forces.

Unit-II

Friction, Laws of friction, Equilibrium of a particle on a rough plane. Centre of Gravity: Centre of gravity of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

Unit-III

Vector differentiation, Gradient, divergence and curl operators, line integrals, Vector identity, and Vector integration.

Unit-IV

Theorems of Gauss, Green, Stokes and problems based on these.

Reference Books:
1. N.P. Bali, Statics, Laxmi Publications, Sixth edition, 2007.
2. M.R. Spiegal, Vector Analysis, Schaum's outline Series, McGraw Hill, Second edition, 2017.
3. S.L. Loney, The Elements of Statics and Dynamics, Arihant Publications, Sixth edition, 2016.
4. R.S. Verma, A Text Book on Statics, Pothishala Private Limited, Allahabad, 1962.

Bachelor of Arts/ Bachelor of Science (Economics)
Semester–IV
Session: 2024-25
Course Title: Mathematics (Solid Geometry)
Course Code: BECM -4333(II)

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand the concept of cylinder, enveloping cylinder and its limiting form.

CO 2: Demonstrate the concept of cone, classification of cone, intersection of line and cone, reciprocal cone.

CO 3: Describe the concept of conicoid or quadratic surface, its classification, trace different types of conicoid and hence find surface of revolution.

CO 4: Describe the concept of tangent and normal plane to the conicoid and Identify the conicoid, representing it in the form of hyperboloid, ellipsoid, paraboloid.

Examination Time: 3 Hours   Max. Marks: 75

L-T-P   Theory: 60

 3 0 0
CA:15

Instructions for the Paper Setter: Eight questions of equal marks (12 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I
Cylinder as surface generated by a line moving parallel to a fixed line and through fixed curve. Different kinds of cylinders such as right circular, elliptic, hyperbolic and parabolic in standard forms

Unit-II
Cone with a vertex at the origin as the graph of homogeneous equation of second degree in *x, y, z* . Cone as a surface generated by a line passing through a fixed curve and fixed point outside the plane of the curve. Right circular and elliptic cones.

Unit-III
Equation of surface of revolution obtained by rotating the curve f(x,y)=0 about the z-axis in the form of f(x²+y², z) =0.Equation of ellipsoid, hyperboloid and Paraboloid in standard forms.

Unit-IV
Surfaces represented by general equation of 2nd degree S = 0. Tangent lines, tangent planes and Normal Plane.

Text Book:
P. K. Jain & Khalil Ahmed, A text book of Analytical Geometry of three dimensions, New age international limited, Second edition, 2003.

 Reference Books:
1. S. Narayan, & P.K.Mittal, Analytical Solid Geometry, Sultan Chand & Sons, New Delhi, Sixteenth edition, 2002 (Scope in Chapters-7,8,11).
2. E. Kreyszig, Advance Engineering Mathematics, John Willey & Sons, tenth edition, 2011.

Bachelor of Science (Economics) Semester- IV
(Session 2024-25)
Course Code: BECM-4134

COMPUTER SCIENCE

(DATA STRUCTURES)

Course Outcomes:

After passing course the student will be able to:

CO1: Analyze complexity of algorithms to determine their efficiency.

CO2: Comprehend various hashing method, sorting and searching algorithms.

CO3: Comprehend various operations of stack and queue along with different scenarios.

CO4: Comprehend advanced data structures such as tree and graph.

COMPUTER SCIENCE

(DATA STRUCTURES)

(THEORY)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                            Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non–storage type calculator.

UNIT–I

Data Structures: Introduction to elementary data organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time-Space Tradeoff between Algorithms.

Arrays: Array defining, representing arrays in memory, various operations on linear arrays, Multi-Dimensional arrays.

UNIT–II

Linked Lists: Types of Linked Lists, representing linked list in memory, advantages of using linked lists over arrays, various operations of linked lists.

Stacks: Description of stack structure, Implementation of stack, using arrays and linked lists, application of stack-converting, arithmetic expression from infix notation to polish notation and their subsequent evaluation, quicksort technique.

UNIT–III

Queues: Description of queue structure, Implementation of queue using arrays and linked lists, description or priorities of queues, deques.

Sorting and Searching: Sorting Algorithms, bubble sort, selection sort, insertion sort, quick sort, merge sort, heap sort, searching Algorithms, linear search and binary search.

UNIT-IV

Trees: Description of Tree Structure and its Terminology, Binary Trees and Binary Search Trees and their representation in Memory, Heapsort.
Graphs: Description of Graph Structure, Implement Graphs in Memory using Adjacency Matrix, Path Matrix, graph traversal techniques - DFS, BFS.

References / Textbooks:

1. Seymour Lipschutz, Data Structures with C (Schaum's Outline Series), McGraw Hill Education (2017), 1st Edition
2. Reema Thareja, Data Structures Using C, Oxford Publication (2014), 2nd Edition
3. Sahni Horowitz, Fundamentals of Data Strucetures in C (2008), 2nd Edition
4. Narasimha Karumanchi, Data Structures and Algorithms made easy, Careermonk Publications (2016), 5th Edition
5. S.K. Srivastava and Deepali Srivastava, Data Structures through C, BPB Publications (2004)
6. Yedidyah Langsam, Augestein and Tanenbaum, Data Structures using C and C++, Pearson Education India (2015), 2nd Edition

Bachelor of Science (Economics) Semester- IV
(Session 2024-25)
Course Code: BECM-4134

COMPUTER SCIENCE

(DATA STRUCTURES)

(PRACTICAL)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                            Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Data Structures.

Bachelor of Science(Economics) Semester IV

(Session 2024-25)
COURSE CODE: BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)

Course Outcomes:

After passing this course the student will be able to:

CO1: Illustrate the concept of data models, database normalization along with its various forms.

CO2: Apply SQL to design basic to intermediate level of databases.

CO3: Apply various built-in functions for formatting of data.

CO4: Comprehend the concept of PL/SQL and its relationship with SQL.

Bachelor of Science(Economics) Semester IV

(Session 2024-25)
COURSE CODE: BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)

(THEORY)

Examination Time: 3 +3 Hrs.	**Max. Marks: 100**
	Theory: 50
L-T-P: 3-0-1	**Practical:30**
Credits: 4	**CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Basic Concepts: An overview of Database Management, (database, database system, why database). An architecture for a database system (levels of the architecture, mapping, data independence), DBA, Definition of CODD's Rules.

Normalization of Data: First, Second and Third Normal form, **Database Models:** Hierarchical, Network, Relational, Introduction to Relational database systems.

UNIT II

ORACLE: Introduction to Oracle, **Data Types:** Char, numbers, varchar, varchar2, date, long.

DDL Commands of SQL: Create Tables, Constraints, Alter Table, Drop Table, Rename.

Data Manipulation Language: Insert Into, Update Statement, Delete Statement, Select statement (Select distinct, Select from where, Select from where order by, Select group by clause, Select Group by having clause).

Transaction Control Language: Rollback, Savepoint, Commit.

UNIT III

Built in Functions- Aggregate Functions (Sum, Avg, max, min, count), Character Functions (Lower, Upper, Length, Substr, RPAD, LPAD), Arithmetic Functions (Round, Trunc, Sqrt, Mod, Abs, Sine) Date and Time Functions and Other Miscellaneous Functions (Add-months, Month-between, NVL, NVL2, decode) & Conversion Functions (to-char,to-number, to-date).

Join methods and Sub query, Union, Intersection, Minus, Views.

UNIT IV

PL/SQL: Introduction to PL/SQL, Relationship between SQL & PL/SQL, Advantages, block structure, Valuable and Constant declaration, Declaration using variable attributes - %type, %rowtype, control statements.

References:

1.   Silberschatz, Korth&Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.
2.   C.J. Date, An Introduction of Database System, Addison-Wesley Publishing co. (2003), 8th edition.
3.   Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.
4.   Ivan Bayross, SQL/PL/SQL. The Programming Language of Oracle, BPB Publications(2010), 4th edition.
5.   RamezElmasri and ShamkantNavathe, Fundamentals of Database Systems, Pearson Education (2015), 7th edition.
6.   P.S. Gill, Database Management Systems, Dreamtech Press (2019), 2th edition.

Bachelor of Science(Economics) Semester IV

(Session 2024-25)
COURSE CODE: BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)

(PRACTICAL)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                        Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Relational Data Base Management System .

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULAM OF EXAMINATION OF THREE YEAR DEGREE PROGRAM
Bachelor of Science (Economics)
Session: 2023-2025

Semester V								
Course Code	**Course Name**			**Course Type**	**Marks**			**Examination time (in Hours)**
					Total	**Ext.**	**CA**	
						L	**P**		
BECL-5421 BECL-5031 BECL-5431	Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture			C	50	40	-	10	3
BECL-5212	English (Compulsory)			C	50	40	-	10	3
BECL-5175	**Economics** (Economics of Development)			C	100	80	-	20	3
BECL-5453	**Quantitative Techniques** (Quantitative Techniques-V)			E	100	80	-	20	3
BECM-5333	**Mathematics**	I	Dynamics	E	100	80 (40+40)	-	20	3+3
		II	Number Theory						
BECM-5134		**Computer Science** (Database Management Systems)		E	100	50	30	20	3+3
	(P)	**Computer Science** (Database Management Systems) (PRACTICAL)							
BECM-5124		**Computer Applications (Vocational)** (Internet and Web Designing)		E	100	50	30	20	3+3
	(P)	**Computer Applications** (Internet and Web Designing) (PRACTICAL)							
SECI-5541	*Innovation, Entrepreneurship and Creative Thinking			AC	25	20	-	5	1
Total					**400**				

C-Compulsory
E-Elective
AC- Audit Course
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

PUNJABI (COMPULSORY)

COURSE CODE- BECL -5421

COURSE OUTCOMES

CO1: u'DthnK gzikph ejkDhnK Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo ejkDhnK gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j?.

CO2: Bktb 'J/j[jwkok ihtDk' (dbhg e''o fNtkDk) Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo Bktb gVQD dh o[uh Bz{ g?dk eoBk j? ns/ fJ; ;kfjs o{g Bkb i'VDk j?.

CO3: g?oQk ouBk eoB Bkb ftfdnkoEh nkgDh rZb B{z efjD dh iku f;;ZyDr/ ns/ fJj fdwkrh e;os ftu ;jk.Jh j't/rh.;ob nzro/Ih g?oQQ/ dk gzikph ftu nB[tkd dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BK dh fbyD gqfsGk B{z T[ikro eoBk j?.

CO4: tkekswe i[rsK L w/b s/ nfXeko Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo GkPk dh nwhoh ns/ pkohehnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?.

PUNJABI (COMPULSORY)
COURSE CODE- BECL -5421

;wK L 3 xzN/   **Maximum Marks: 50**

Theory: 40

CA: 10

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 8 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.

<div align="center">

gkm eqw ns/ gkm g[;seK

:{fBN-I

</div>

u'DthnK gzikph ejkDhnK
(;zgkHvkHofwzdo e''o, gpbhe/PB fpT{o', r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o, 2018)

b/ye	ejkDh	ejkDh ;zrqfj
nihs e''o	fBT{ :hno	w''s nbh pkp/ dh
fizdo	;''oh	i\w
;[yih	jIko ejkDhnK dk pkg	w? fJzi[nkJ/ eodh jK
ifszdo jK;	okj{ e/s{	JhPto dk iBw
gq/w gqekP	noiB S/V rvhoBk	e[M nDfejk th
uzdB B/rh	joy ;'r	joy ;'r
i;ftzdo f;zx	y{j yks/	y{j yks/
r[od/t f;zx o[gkDk PhPk	PhPk ns/ j'o ejkDhnK

(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ / gkso fusoB)   **8 nze**

<div align="center">

:{fBN-II

</div>

Bktb L J/j[jwkok ihtDk(dbhg e''o fNtkDk)
(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ / fposKse i[rsK)   **8 nze**

<div align="center">

:{fBN-III

</div>

brgr 200 PpdK ftu g?oQk ouBk

;ob nzro/Ih g?oQ/ dk gzikph ftu nB[tkd   **8 nze**

<div align="center">

:{fBN-IV

</div>

ftnkeoD L
(T) BKt tkezP
(n) w/b s/ nfXeko **8 nze**

BACHELOR OF SCIENCE (ECONOMICS) SEMESTER–V
Basic Punjabi (In lieu of Punjabi Compulsory)
COURSE CODE- BECL -5031

COURSE OUTCOMES

CO1: ftfdnkoEh ;kfjs ns/ b'e ;kfjs,b'e ekft,b'e tkose fposKs dh (w[ZYbh ikD gSkD) pko/ ikD ;eDr/.

CO2: ftfdnkoEh ;[jkr,x'VhnK, f;ZmDhnK dh (w[ZYbh ikD gSkD) pko/ ikD ;eDr/.

CO3: ftfdnkoEh frZXk (w[ZYbh ikD gSkD),GzrVk (w[ZYbh ikD gSkD),M{wo (w[ZYbh ikD gSkD) pko/ ikD ;eDr/.

CO4: ftfdnkoEh b'e y/vK (w[ZYbh ikD gSkD),b'e swkP/ (w[ZYbh ikD gSkD),b'e ebktK (w[ZYbh ikD gSkD) **dk ftjkoe nfXn?B eo ;eD d/ ;woZE j' ;eDr/.**

BACHELOR OF ARTS /BACHELOR OF SCIENCE (ECONOMICS) SEMESTER–V
Basic Punjabi (In lieu of Punjabi Compulsory)
COURSE CODE- BECL -5031

smW: 3 GMty   **Maximum Marks**
: 50

Theory   : 40

CA   : 10

nze tzv ns/ gohfyne bJh jdkf.JsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ euuu[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 8 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK

ftu eo ;edk j?.

gkmeqw

:{fBN-I

;kfjs ns/ b'e ;kfjs (w[ZYbh ikD gSkD)
b'e ekft (w[ZYbh ikD gSkD)
b'e tkose fposKs (w[ZYbh ikD gSkD)   **8 nze**

:{fBN-II

;[jkr (w[ZYbh ikD gSkD)
x'VhnK (w[ZYbh ikD gSkD)
f;ZmDhnK (w[ZYbh ikD gSkD)   **8 nze**

:{fBN-III

frZXk (w[ZYbh ikD gSkD)
GzrVk (w[ZYbh ikD gSkD)
M{wo (w[ZYbh ikD gSkD)   **8 nze**

:{fBN-IV

b'e y/vK (w[ZYbh ikD gSkD)
b'e swkP/ (w[ZYbh ikD gSkD)
b'e ebktK (w[ZYbh ikD gSkD)   **8 nze**

BACHELOR OF SCIENCE (ECONOMICS)
Semester V
Session 2024-25
ENGLISH (COMPULSORY)
Course Code: BECL -5212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: analyze and appreciate the dramatic technique, plot development and art of characterisation in the prescribed play, "All My Sons" by Arthur Miller

CO 2: widen their knowledge about various literary devices used in poetry such as tone, style, imagery, figures of speech, symbolism etc. thorough the study of prescribed poems from the text "Poems of Nature and Culture"

CO 3: develop the knowledge, skills and capabilities for effective business writing such as formal letter writing, job application and resume writing

CO 4: will develop skills for writing job application and suitable resume along with.

Max. Marks: 50

Examination Time: 3 Hrs   **Theory: 40**

CA: 10

Instructions for the Examiner:

Section A: Three questions from the play *All My Sons* from Unit I and three questions from *Poems of Nature and Culture* from Unit II requiring very short answers will be set. The students would be required to answer any five, each carrying two marks (50 words each).   **(5×2=10)**

Section B: Four questions requiring brief descriptive answers based on character, tone, plot and theme(s) in the play *All My Sons* from Unit I will be set and the students would be required to attempt any two, each carrying five marks (250 words each).   **(2×5= 10)**

Section C: Four questions based on the central idea, theme, tone or style etc. of the prescribed poems from the textbook, *Poems of Nature and Culture* from Unit II will be set for the students to attempt any two of these, each carrying five marks (250 words each). The questions can also be set based on stanzas with reference to context.   **(2×5= 10)**

Section D: Two questions with internal choice will be set based on unit 3 (formal letter) and unit 4 (Job application and Resume Writing) each carrying five marks.   **(2×5=10)**

Unit I

All My Sons by Arthur Miller

Unit II

Poems of Nature and Culture:

William Wordsworth: The World is Too Much with Us
Gordon Lord Byron: She Walks in Beauty
P.B. Shelly: Ozymandias
Alfred Lord Tennyson: In Memoriam
Mathew Arnold: Dover Beach
Wilfred Owen: Strange Meeting
Robert Graves: The Portrait
W.H. Auden: The Unknown Citizen
Ted Hughes: The Thought-Fox
Sylvia Plath: Mirror
Rabindranath Tagore: False Religion
Nissim Ezekiel: Night of Scorpion

Unit III

Formal letter

Unit IV

Job Application and Resume Writing

Texts Prescribed:
1. *All My Sons* by Arthur Miller
2. *Poems of Nature and Culture,* Guru Nanak Dev University, Amritsar
3. *Oxford Guide to Effective Writing and Speaking* by John Seely.

Course outcomes:

After passing this course, students will be able to:

CO1: learn the measurement of economic development and understand the economic problems of developing and least developed countries

CO2: examine the models of growth critically and recognize the importance of their underlying assumptions

CO3: analyze the different strategies of economic development and policy implications of export promotion and import substitution strategies

CO4: understand the role of planning and contribution of capital formation and choice of techniques in the development of UDCs and their changing landscape after globalization and liberalization

Time: 3 Hours   **Max. Marks: 100**
                                                                             Theory: 80
                                                                             CA: 20

Note: Instructions for the Paper–Setter:
Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I

Economic Development: Meaning and Measurement, Economic and Non-Economic Factors, Characteristics of Developing and Least Developed Countries. Human Development Index, Concept of Sustainable Development.

Dualism: Social and Technological Dualism

Lewis Model of Unlimited Supply of Labour, Problems of Unemployment and Disguised Unemployment.

UNIT–II

Models of Growth: Classical, Marxian, Schumpeter, Harrod-Domar, and Solow.

UNIT–III

Rostow's theory of Stages of Growth

Strategies of Economic Development-Balanced vs. Unbalanced Growth; Theory of Big Push; Leibenstein's Critical Minimum Efforts Thesis

Export Promotion and Import Substitution**.**

UNIT–IV

Capital Formation – Meaning and Sources; **Choice of Technique**

Role of Planning in Under Developed Countries, Need, Objective, Strategy, Types and Problems of Planning.

Case Study: Growth Models for the development of different areas of Punjab

Suggested Readings:

1. Gupta and Kapoor(2014) , *Fundamentals of Mathematical Statistics* , Sultan Chand & Sons, New Delhi
2. Rangi S.S.(2016), Statistical Techniques, S. Vikas &Co. (Publishing House) India.

Note: The latest editions of the books are recommended.

Note: The latest editions of the books are recommended.

Bachelor of Science (Economics) Semester–V
Session 2024-25
Course Code: BECL-5453
Quantitative Techniques (Quantitative Techniques–V)

Course outcomes:

After the successful completion of this course, the students will be able to

CO1: understand the basics of methods of estimation and the process of formulation and of testing the hypothesis.

CO2: understand the theoretical details of sampling distributions

CO3: understand the basic applications of sampling distributions.

CO4: understand ANOVA to split and analyze the variations in economic phenomenon.

Bachelor of Science (Economics) Semester–V
Session 2024-25
Course Code: BECL-5453
Quantitative Techniques (Quantitative Techniques–V)

Time: 3 Hours   Max. Marks: 100
                                                                              Theory: 80
                                                                                   CA: 20

Note: Instructions for the Paper–Setter:
Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I

Statistical Inference: Point & Interval Estimation, Properties of a Good Estimator, Maximum Likelihood Method of Estimation and derivation of mean and variance of Binomial, Poisson and Normal distributions using MLE. Basic Concepts of Null and Alternative Hypotheses, Types of Errors, One-Tailed and Two-Tailed Tests, Power of Test, Critical Region.

UNIT–II

Sampling Distributions: Derivation of properties of Z, T, Chi-Square and F distributions.

UNIT–III

Tests of significance based upon the distribution of Z, t, F and Chi-square.

UNIT–IV

Analysis of Variance: Introduction, Assumptions, Techniques of Analyzing Variance-Analysis of Variance of one-way and two-way classification.

 Practical: t-test with SPSS/ any other Statistical Software

Suggested Readings:

1. Gupta and Kapoor(2014) , *Fundamentals of Mathematical Statistics* , Sultan Chand & Sons, New Delhi
2. Rangi S.S.(2016), Statistical Techniques, S. Vikas &Co. (Publishing House) India.

Note: The latest editions of the books are recommended.

Bachelor of Arts/ Bachelor of Science (Economics) Semester–V
Session: 2024-25
Course Title: Mathematics (Dynamics)
Course Code: BECM 5333(I)
Course Outcomes

After passing this course, the students will be able to:

CO 1: Demonstrate the basic relations between distance, time, velocity and acceleration, manage to solve the problems of Newton's Laws of Motion and the motion of particles connected by a string.

CO 2: Illustrate motion along a smooth inclined plane. Solve different types of problems with Variable Acceleration. Discuss Simple Harmonic Motion.

CO 3: Understand the concept of projectile, oscillating system.

CO 4: Define Work, Power and Energy and explain their relationship. Use measurement tools to apply the concepts of Work and power to solve real life problems. Identify the different types of energy.

Examination Time: 3 Hours   Max Marks:50
                                                                  Theory: 40
                                                                        CA: 10

Instructions for the paper setter:

Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit-I

Rectilinear motion in a straight line with uniform acceleration, Newton's laws of motion. Motion of two particles connected by a string.

Unit-II

Motion along a smooth inclined plane. Variable acceleration. Simple Harmonic Motion.

Unit-III

Curvilinear motion of particle in a plane, Definition of velocity and acceleration, projectiles, velocity and direction of motion of a projectile after a given time, projectiles on an inclined plane. Oscillations: Free Vibrations, Simple Pendulum, Conical Pendulum.

Unit-IV

Work, Power and Energy: Kinetic and Potential energy, Conservative forces. Theorem of conservation of energy. Work done against gravity.

Text Book:

R. Kumar, Fundamentals of Dynamics, Pardeep Publications, Jalandhar city, second edition, 2004

Reference Books:

  1.F. Chorlton, Text Book of Dynamics, CBS Publishers, New Delhi, second edition, 2004 (Scope in chapters 3,8).

  2. S.R. Gupta, Elementary Analytical Dynamics, S. Chand and Company, New Delhi, Fourteenth Edition, 1983(Scope in chapters 1,2,3)

Bachelor of Science (Economics) Semester–V
Session: 2024-25
Course Title: Mathematics (Number Theory)
Course Code: BECM -5333(II)
Course Outcomes

Successful completion of this course will enable the students to:

CO 1: Prove results involving divisibility and greatest common divisors.

CO 2: Find solutions of specified linear Diophantine equation, basic properties of Congruences.

CO 3: Solve system of linear congruences. Apply Fermat's and Wilson's theorem to solve numerical problems.

CO 4: Apply Euler's theorem and apply properties of phi functions in real world problems. Understand application of important arithmetic functions.

Examination Time:3 Hours   Max Marks:50
                                                                                          Theory: 40
                                                                                          CA:10

Instructions for the Paper Setter:

Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit-I

The division algorithm, The greatest common divisor, least common multiple, The Euclidean algorithm.

Unit-II

The Diophantine equation $ax + by = c$, Prime numbers and their distribution, the fundamental theorem of arithmetic, Basic properties of congruences.

Unit-III

Linear congruences, Special divisibility tests, Chinese remainder theorem, The Fermat's theorem, Wilson's theorem

Unit-IV

Euler's Phi function, Euler's theorem, some properties of the Phi Function, σ and τ functions, Mobius Inversion formula, Greatest integer function

Text Book:

D. M. Burton, Elementary Number Theory, Mc Graw-Hill, seventh edition, 2010.

Reference Books,

1.Niven and Zuckerman, An Introduction to the theory of Numbers, John Willey & Sons, 1991.

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

Course Outcomes:

After passing course the student will be able to:

CO1: Understand data, database and database models.

CO2: Gain knowledge of normalization, security and recovery of database.

CO3: Create, manage and access database using SQL.

CO4: Comprehend the application of programming language constructs in database access.

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

(THEORY)

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

DBMS: Introduction to database management system, Components of DBMS, Three Level Database System Architecture, ER. Diagrams. Data Models, Hierarchical Model, Network Model and Relational Model, Relational Databases, Relational Algebra and Calculus.

UNIT–II

Normalization: Introduction, Normal Forms: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF.

Database Security: Protection, Integrity.

Recovery: Introduction, Recovery Techniques: Log Based Recovery and Shadow Paging.

Concurrency Control: Introduction, Concurrency control with locking methods, Two Phase locking, Precedence graph, Concurrency control based on timestamp ordering, Concurrency control based on optimistic scheduling.

UNIT–III

SQL * PLUS: Introduction to Oracle , Features of Oracle .

SQL Statements: DDL, DML, DCL, TCL, constraints, Join methods & Sub query, Union, Intersection, Built in Functions, View, and Security amongst users, Sequences, indexing object

UNIT–IV

PL/SQL: Introduction to PL/SQL. Cursors – Implicit & Explicit. Procedures, Functions & Packages, Database Triggers.

References/Textbooks:

1. C. J. Date, An Introduction to Database Systems, Pearson Education 2000.
2. F. Korth & Silverschatz, A., Database System Concepts, Tata McGraw Hill, 2010.
3. Elmasri & Navathe, Fundamentals of Database Systems, Addison-Wesley, 2011.
4. B.C.Desai, An Introduction to Database Management System, Galgotia Publication, 1991.
5. Ivan Bayross, SQL, PL/SQL - The Programming Language of Oracle, BPB Publications, 2010.
6. Gurvinder Singh, Parteek Bhatia, Simplified Approach to DBMS, Kalyani Publishers, 2016.
7. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publications, 4th Edition.

Note: The latest editions of the books should be followed.

Bachelor of Science (Economics) - Semester–V
Session 2024-25
COURSE CODE: BECM-5134

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Lab on database management system.

Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend basics of internet and email along with their effective use.

CO2: Apply HTML for development of static webpages.

CO3: Implement styling in webpages through the use of CSS.

CO4: Apply JavaScript code for interaction with content of webpages.

Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(THEORY)

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for the Paper Setters: –
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Internet: Introduction, its evolution, working, IP Address, DNS and its classification, working of DNS, Advantages, Disadvantages and Uses of Internet.

E–Mail: Introduction, its working, E-mail protocols: SMTP, POP, IMAP, Structure of E-mail.

HTTP: HTTP Protocol and its structure. **WWW:** Introduction and its working, **TCP/IP,** Browser Architecture. **FTP:** Introduction and its working**.**

UNIT – II

HTML: Introduction, Features, Advantages and Limitations, Program Structure, Headings, Paragraph, Styling, Formatting, Hyperlink, Image, Table, List, Frame, Entities, Form, Form elements.

UNIT-III

CSS: Introduction, Advantages and Limitations, types, selector, colors, background, box model, text, font, display, position, z-index, float, clear, rounded corners.

UNIT-IV

JavaScript: Basics, Features, Advantages, Limitations, Types, Basics, Functions, Control Statement, Arrays, JavaScript objects, Host objects.

DOM: Introduction, Methods, Accessing HTML and CSS, Events, Event Listener, Nodes and Collection.

BOM: Window, Screen, History, Navigation.

References / Textbooks:

1. Anshuman Sharma, Fundamentals of Internaet Applications, Lakhanpal Publications, 2016.

2. Ikvinderpal Singh, Internet Applications, Khanna Book Publishing Company, 1st Edition, 2011

3. P. Rizwan Ahmed, Internet & its Applications, Margham Publications, 2013.

4. Douglas E. Corner, Computer Networks and Internet with Internet Applications, Pearson, 4th Edition, 2008.

5. Satish Jain/Vineeta Pillai, Wireless Communication & Networking made Simple, BPB Publishers, 2007.

6. Laura Lerney, Rafe Colburn, Jennifer Kyrnin, Mastering HTML, CSS & Javascript Web Publishing, BPB Publishers, 1st Edition, 2016.

Note: The latest editions of the books should be followed.

Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(PRACTICAL)

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Practical on Internet and Web Designing.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULAM OF EXAMINATION OF THREE YEAR DEGREE PROGRAM
Bachelor of Science (Economics)
Session: 2023-2025

Course Code	Course Name		Course Type	Total	Ext. L	Ext. P	CA	Examination time (in Hours)
					Marks			
BECL-6421 BECL-6031 BECL-6431	Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History and Culture		C	50	40	-	10	3
BECL-6212	English (Compulsory)		C	50	40	-	10	3
BECL-6175	**Economics** (Quantitative Methods for Economists)		C	100	80	-	20	3
BECL-6453	**Quantitative Techniques** (Quantitative Techniques-VI)		E	100	80	-	20	3
BECM-6333	**Mathematics**	I Linear Algebra	E	100	80 (40+40)	-	20	3+3
		II Numerical Analysis						
BECM-6134	**Computer Science** (Information Technology)		E	100	50	30	20	3+3
	(P)	**Computer Science** (Information Technology) (PRACTICAL)						
BECM-6124	**Computer Applications (Vocational)** (Business Data Processing)		E	100	50	30	20	3+3
	(P)	**Computer Applications** (Business Data Processing) (PRACTICAL)						
Total				**400**				

C-Compulsory
E-Elective
[1] Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

COURSE OUTCOMES

CO1: 'ekft r"ot' Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo eftsktK gqsh fdbu;gh, ;{M Bz{ g?dk eoBk j?.

CO2: 'XoshnK d/ rhs' (;|oBkwk) Bz{ f;b/p; ftu Pkfwb eo e/ ftfdnkoEhnK nzdo ;|oBkwk gVQD dh o[uh Bz{ g?dk eoBk j? ns/ fJ; ;kfjs o{g Bkb Bkb i'VDk j?.

CO3: b/y ouBk eoB Bkb ftfdnkoEh nkgDh rZb B{z efjD dh iku f;ZyDr/ ns/ fJj fdwkrh e;os ftu ;jkJh j't/rh. ;kfjs o{gK eftsk, ejkDh, Bktb, BkNe, fJeKrh **dh gfoGkPk,gqeko s/ sZs Bkb ikD{ eotkfJnk ikt/rk.;kfjs o{gK B{z f;b/p; ftZu Pkwb eoB dk we;d ftfdnkoEhnK B{z fJBQK ;kfjs o{gK dh gfoGkPk,gqfeosh ns/ sZsK s'A pkoeh Bkb ikD{ eotkT[Dk j?.**

CO4: ftnkeoBe ;aq/DhnK L fbzr, tuB,ekoe fefonk tkezP dh gfoGkPk, pDso s/ gqeko Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo GkPk dh nwhoh ns/ pkohnnK Bz{ ;wMD bJh tZyo/ -tZyo/ f;XKsK dk ftek; eoBk j?.

PUNJABI (COMPULSORY)
COURSE CODE- BECL -6421

;wK L 3 xzN/   Maximum Marks: 50

Theory: 40

CA: 10

nze tzv ns/ gohfyne bJh jdkfJsK

1H gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H jo/e gqPB d/ 8 nze jB.

4H g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK ftu eo ;edk j?.

gkmeqw ns/ gkm g[;seK

:{fBN-I

ekft r''ot(gfjb/ S/ eth);zgkHfpeow f;zx x[zwD, eowihs e''o),r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o,
(P/y |ohd, Pkj j[;?B, r[o{ BkBe d/t ih, r[o{ noiB d/t ih,tkfo; Pkj, Pkj w[jzwd)
(gq;zr ;fjs ftnkfynk$ft;ak t;s{$;ko)   8 nze

:{fBN-II

XoshnK d/ rhs(;|oBkwk), pofizdo f;zx jwdod,BkBe f;zx g[;sewkbk, nzfwqs;o
(;wki ;fGnkuko gfog/y$;oBkw/ d/ s''o s/ goy)   8 nze

:{fBN-III

(T) b/y ouBk(ftfrnkB, seBkb'ih ns/ ubzs w;fbnK ;pzXh)
(n) nkX[fBe ;kfjs o{g L eftsk, ejkDh, Bktb, BkNe, fJeKrh

8 nze

:{fBN-IV

ftnkeoD L
(T) ftnkeoBe ;aq/DhnK L fbzr, tuB,ekoe
(n) fefonk tkezP L gfoGkPk, pDso s/ gqeko   8 nze

COURSE OUTCOMES

CO1: ftfdnkoEh gzikph ;fGnkuko dk fgS'eV,gzikph ;fGnkuko dh G{r'fbe ;fEsh,gzikph ;fGnkuko d/ fByVt/ bZSD **dk nfXn?B eoBr/.**

CO2: gzikp d/ w/b/, gzikp d/ fsT[jko,gzikp d/ gqw[Zy Xkofwe ;EkB **pko/ ikD ;eDr/.**

CO3: iBw Bkb ;zpzfXs ohsK o;wK,ftnkj Bkb ;zpzfXs ohsK o;wK,w"s Bkb ;zpzfXs ohsK o;wK **pko/ ikD ;eDr/.**

CO4: gzikp dk ykD ghD,gzikp dk gfjoktk,gzikp d/ b'e ftPtk; **dk nfXn?B eoBr/.**

<div align="center">**COURSE CODE- BECL -6031**</div>

smW: 3 GMty
: 50

<div align="right">

Maximum Marks

Theory   **: 40**

CA : 10
</div>

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko ;?ePB j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo ;?ePB ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[Zb gzi gqPB eoB/ jB. jo ;?ePB ftu'A fJe gqPB eoBk bkIwh j?. gzitK gqPB fe;/ th ;?ePB ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 8 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nZr'A tZX s'A tZX uko T[g gqPBK

ftu eo ;edk j?.

<div align="center">**gkmeqw**</div>

<div align="center">**:{fBN-I**</div>

gzikph ;fGnkuko dk fgS'eV
gzikph ;fGnkuko dh G{r'fbe ;fEsh
gzikph ;fGnkuko d/ fByZVtA/ bZSD
8 nze

<div align="center">**:{fBN-II**</div>

gzikp d/ w/b/
gzikp d/ fsT[jko
gzikp d/ gqw[Zy Xkofwe ;EkB   **8 nze**

<div align="center">**:{fBN-III**</div>

iBw Bkb ;zpzfXs ohsK o;wK
ftnkj Bkb ;zpzfXs ohsK o;wK
w"s Bkb ;zpzfXs ohsK o;wK   **8 nze**

<div align="center">**:{fBN-IV**</div>

gzikp dk ykD ghD
gzikp dk gfjoktk
gzikp d/ b'e ftPtk;   **8 nze**

<div align="center">

BACHELOR OF SCIENCE (ECONOMICS)

Semester VI

Session 2024-25
</div>

COURSE OUTCOMES

After passing this course, the students will be able to:

CO 1: comprehend, appreciate and critically analyse a novel through the story of the novel *Train to Pakistan* by Khushwant Singh

CO 2: analyze and appreciate the dramatic technique, plot development and art of characterisation through the study of the prescribed plays from the book *Glimpses of Theatre*

CO 3: enhance their writing skills by writing essay on any given topics well as to write report on any incident witnessed

CO 4: write appropriate reports on any incident witnessed.

Examination Time: 3 Hrs

Instructions for the Examiner:

Section A: Three questions from the novel *Train to Pakistan* from Unit I and three questions from *Glimpses of Theatre* from Unit II requiring very short answers will be set. The students would be required to answer any five, each carrying 2 marks (50 words each).   **(5×2=10)**

Section B: Four questions requiring brief descriptive answers based on character, plot and theme(s) in the novel *Train to Pakistan* from Unit I will be set and students would be required to attempt any two, each carrying 5 marks (250 words each).   **(2×5=10)**

Section C: Four questions based on the central idea, theme, tone or style etc. of the prescribed plays from the textbook, *Glimpses of Theatre* from Unit II will be set for the students to attempt any two, each carrying 5 marks (250 words each).   **(2×5=10)**

Section D: Two questions with internal choice will be set based on Unit 3 (Essay Writing) carrying six marks (word limit 300 words) and Unit 4 (Report Writing) carrying four marks word limit 200 words).   **(1×6 + 1×4=10)**

Unit I

Train to Pakistan by Khushwant Singh

Unit II

Glimpses of Theatre:

i) The Will
ii) Villa for Sale
iii) Progress
iv) The Monkey's Paw

Unit III

Essay Writing

Unit IV

Report Writing

Texts Prescribed:

1. *Train to Pakistan* by Khushwant Singh
2. *Glimpses of Theatre*, Guru Nanak Dev University Amritsar

Bachelor of Science (Economics) Semester –VI
Session 2024-25
Course Code: BECL-6175
Economics (Quantitative Methods for Economists)

Course outcomes:

After passing this course, students will be able to:

CO1: learn basic techniques of mathematics and their applications in economics

CO2: analyze data by using means of central tendency and dispersion.

CO3: understand the shapes of the curve and the relationship between variables by using techniques of skewness, kurtosis, and correlation and learn prediction and forecasting by using regression

CO4: calculate relative changes in the magnitude of related variables and also missing values within the data.

Bachelor of Science (Economics) Semester –VI
Session 2024-25
Course Code: BECL-6175
Economics (Quantitative Methods for Economists)

Time: 3 Hours   **Max. Marks: 100**
                                                                          Theory: 80
                                                                          CA: 20

Note: Instructions for the Paper–Setter:
Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT–I
Sets, Relations and functions, Derivative of simple functions only (excluding log & exponential functions).Maxima/Minima for single variable functions. Introduction to Matrices - definition, properties & inverse.

UNIT–II
Measures of Central Tendency — Mean, Mode, Median and Geometric Mean; Measures of Dispersion.

UNIT–III
Concepts and Measure of Skewness and Kurtosis: Boyle's & Karl Pearson's measures. Simple Correlation & Regression (ungrouped & grouped data).

UNIT–IV
Interpolation: Concepts and Methods — Binomial expansion, Newton and Lagrange's Method (with emphasis on missing values only). Price Index Numbers–Weighted and Unweighted Index Numbers, various formulae and consistency tests.

Case Study – Real-Life Examples Based on Central Tendency and Dispersion

Suggested Readings

1. Gupta, S.P. (2014), *Statistical Methods*, Sultan Chand & Sons, New Delhi.
2. Gupta, S.C. (2018), *Fundamentals of Statistics*, Himalaya Publishing House, New Delhi
3. Elhance, D.N. and Elhance, V. (2018), *Fundamentals of Statistics*, Kitab Mahal, Allahabad
4. Croxton, F.E., Cowden, D.J., and Klein. S. (1973), *Applied General Statistics,* 3rd. Ed., Prentice Hall of India, New Delhi.
5. Nagar, A.L. and Das, R.K. (1976), *Basic Statistics*, Oxford University Press, Bombay.
6. Aggarwal, C.S and Joshi, S.C.(2017) ,*Mathematics for Students of Economics,* New Academic Publishing Co., Jalandhar
Note: The latest editions of the books are recommended.

Bachelor of Science (Economics) Semester–VI
Session 2024-25
Course Code: BECL-6453
Quantitative Techniques (Quantitative Techniques–VI)

Course outcomes:

After passing this course, students will be able to:

CO1: understand the nature and methodology of econometrics.

CO2: understand the OLS procedure of estimation of the model and tests of significance.

CO3: understand the nature and solutions of problems associated with the estimation of regression

CO4: understand the basics of dummy variables and estimation of models with lags.

Bachelor of Science (Economics) (Semester–VI)
Session 2024-25
Course Code: BECL-6453
Quantitative Techniques (Quantitative Techniques–VI)

Time: 3 Hours   **Max. Marks: 100**
                                                                              Theory: 80
                                                                                    CA: 20

Note: Instructions for the Paper–Setter:
Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

Unit – I

Definition, Scope and Nature of Econometrics. Simple Linear Regression Model (OLS method) with applications

Unit – II

General Linear Regression Model: assumptions, properties (BLUE). Gauss-Markov Theorem (Two Variable and K-variable). Concepts of R^2 and Adjusted R^2, Test of Significance (Stress on Numericals)

Unit – III

Econometric Problems of Heteroscedasticity and Multicollinearity in the Regression Analysis: Sources, Consequences, Tests and Remedial Measures. Specification Bias.

Unit – IV

Problem of Auto-Correlation in the Regression Analysis: Sources, Consequences, Tests and Remedial Measures. Distributed Lag Models and Auto-Regressive Models (Introductory). Dummy Variable Technique and its uses.

Practical: Defining Variables and Entering Data, Estimation of Regression with SPSS or any other statistical software

Suggested Readings:
1. Madnani GMK, (2015), *Introduction of Econometrics,* Oxford and IBH Publishing, N. Delhi.
2. Koutsoyiannis, A, *(2001), Theory of Econometrics,* The Macmillan Press Ltd., London.

Note: The latest editions of the books are recommended.

Bachelor of Arts/Bachelor of Science (Economics)
Semester–VI
Session- 2024-25
Course Title: Mathematics (Linear Algebra)
Course Code: BECM -6333(I)
Course Outcomes

After the completion of this course, students should be able to:

CO 1: Express the algebraic concepts such as binary operation, groups, rings and fields. Define a vector space and subspace of a vector space and check the linear dependence and linear independence of vectors.

CO 2: Describe the concepts of basis and dimension of vector spaces.

CO 3: Investigate properties of vector spaces and subspaces using linear transformation.

CO 4: Find the matrix representing a linear transformation.

Examination Time: 3 Hours   Max. Marks:50
                                                                          Theory:40
                                                                          CA:10

Instructions for the paper setters/examiners:

Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Definition of groups, rings and fields with examples. Definition of a vector space, subspaces with examples. Direct sum of subspaces. Linear span, Linear dependence, Linear independence of vectors. Linear combination of vectors.

Unit-II

Basis of a vector space, Finitely generated vector spaces. Existence theorem for basis. Invariance of the number of elements of the basis set. Dimension of sum of two subspaces. Quotient space and its dimension.

Unit-III

Linear transformation. Algebra of linear transformation. Rank-Nullity theorem, Isomorphism and Isomorphic spaces.

Unit-IV

Matrix of a linear transformation. Changes of basis, Linear operator.

Text Book:

C.W.Curtis, Linear Algebra, Springer, New York, 2017

Reference Books:

1.S. Singh, Linear Algebra, Vikas Publishing, sixth edition, 1983.

2.V. Krishnamurthy, V. P. Mainra and J. L. Arora, An Introduction to Linear Algebra, East West Press, 1976.

3.S. Narayan and P.K. Mittal, A Text Book of Matrices, S. Chand & Co, tenth edition, 1972.

Bachelor of Arts/Bachelor of Science (Economics/Computer Science/Non-Medical)

Semester–VI

Session: 2024-25

Course Title: Mathematics (Numerical Analysis)

Course Code: BECM -6333(II)

After passing this course, the students will be able to:

CO 1. Know how to find the roots of transcendental and polynomial equations.

CO 2. Perform computation for solving a system of equations.

CO 3. Learn how to interpolate the given set of values.

CO 4. Learn numerical solution of differential equations & compute numerical integration and differentiation, numerical solution of ordinary differential equations.

Bachelor of Arts/Bachelor of Science (Economics)
Semester–VI
Session: 2024-25

Course Title: Mathematics (Numerical Analysis)
Course Code: BECM 6333(II)

Examination Time: 3 Hours
Max. Marks:50
Theory:40
CA:10

Instructions for the Paper Setter: Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

The students can use only Non Programmable& Non Storage Type Calculator.

Unit-I

Error generation, propagation, error estimation and error bounds, Solution of non-linear equations, Bisection method, Iteration method, Newton's Method, Generalized Newton's Method, Method of false position, Muller's method, Rate of convergence of these methods.

Unit-II

Solution of linear system of equation; Direct method, Gauss elimination variant (Gauss Jordan and Crout reduction), Triangular Method, Iterative Method, Jacobi's Method, Gauss Seidel Method. Finite Differences: Forward, Backward, Central, Divided differences, shift operator, relationship between the operators and detection of errors by use of difference operator. Interpolation with divided difference, Newton's formula, Lagrangian Method.

Unit-III

Finite difference interpolation, Gauss formula, Stirling formula, Bessel's formula, Error Estimation Extrapolation. Numerical differentiation, Method based on interpolation. Numerical Integration, Trapezoidal rule, Simpson's rule, Weddle rule, Romberg Integration, Gaussian integration method, Gaussian legendre integration. Double numerical integration.

Unit-IV

Numerical solution of ordinary differential equations, Initial value problem, Taylor's method, Euler's methods, Picard's method, Milne's Method, Runge-Kutta Method. Predictor- Corrector's Method.

Text Book:

M K Jain, S R K Iyenger, R K Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, Seventh edition, 2019.

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

Course Outcomes:

After passing course the student will be able to:

CO1: Identify usage of various communication media and internet.

CO2: Acquaint with the usage of various information systems.

CO3: Comprehend digital marketing concepts and content.

CO4: Create and manage YouTube channel and blog.

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

(Theory)

Examination Time: (3+3) Hrs.   Max. Marks: 100
                                                                      Theory: 50
                                                                      Practical: 30
                                                                      CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use only Non–programmable & Non–storage type calculator

UNIT-I

Data and Network Communication: Communication media: Twisted pair, Coaxial, Fiber optics, Wireless (Line of Sight and Satellite), Network Advantages, Typesand Topologies, Communication using Network protocol/Network Interface card (NP/NIC), Transmission & Communication protocol/protocol (TCP/IP)

Internet: Internet basics**,** its uses and applications. System Development Process and System development Tools.

UNIT-II

Information Technology: Introduction to IT and its components, Information systems, Components of Computer based information systems. Types of Information systems- TPS, MIS, and DSS.

UNIT-III

Introduction to Digital Marketing: Digital Strategy and Planning, Website marketing tools, Digital content – website, blogs, email, webinars, videos, podcasts, e-zines, PPC advertising.

Social Media and Social Bookmarking: Facebook, Twitter, Pinterest, Instagram,

Search Engine Marketing: Meaning, Working and Search Engine Optimization,

UNIT-IV

YouTube Studio: Navigating studio, Uploading videos, Edit Video settings, Analytics, Copyright and Monetization.

Blog Writing: Blog Domain, choice of CMS, Register a domain or subdomain with a website
host.

References/Textbooks:

1. Peter Norton, Introduction to Computers, McGraw Hill (2017), 7th edition.
2. Patrick, G.Mckeown, Living with the Computers, Harcourt College Pub (1990) 3rd edition.
3. Hussain & Hussain, Computer: Technology, Applications & Social Implications, PHI Learning (2006)
4. Behrouz A. Forouzan, Data Communications & Networking, McGraw-Hill Education (2012), 5th edition.
5. Andrew S. Tanenbaum, Computer Network, Prentice Hall (2010), 5th edition.
6. Abraham Silberschatz, Greg Gagne, Peter B. Galvin, Operating System Concepts, Wiley Publishers (2018), 10th edition.
7. Yashavant Kanetkar, Unix Shell Programming, BPB Publications (2003), 1st edition.

Session 2024-25
COURSE CODE: BECM-6134

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                    Theory: 50
                                                    Practical: 30
                                                    CA: 20

Lab on Information Technology.

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Course Outcomes:

After passing course the student will be able to:

CO1: Identify the impact of data and information on working of various organizations.

CO2: Comprehend different types of Data Processing Methods and File Processing techniques.

CO3: Create, edit, save, format and print spreadsheets.

CO4: Apply function and formulas in spreadsheets for data processing.

Bachelor of Science(Economics) Semester VI

(Session 2024-25)
COURSE CODE: BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                        Theory: 50
                                                                        Practical: 30
                                                                        CA: 20

Instructions for the Paper Setters:–
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Introduction to Data Processing, Need of Computers in Business.
Characteristics of Business Organization and Use of computers in various work areas of business like: Payroll System, Inventory Control, Online Reservation, Computer in Banks and Computer Application in Educational Institutions.

UNIT–II

Data Processing Methods: Batch Processing, Online Systems, Time Sharing, Real Time Systems and Distributed Processing.
File Organization: Types of Files (Master, Transaction, Work, Backup, Audit Files), File Organization (Serial, Sequential, Indexed Sequential, Direct Assess Files).

UNIT–III

Spreadsheets : Introduction, Worksheet, Data Entry, Editing, Cell Addressing Range, Copying and Moving Cell Content, Inserting and Deleting Rows and Column, Column Formats, Printing, Creating, displaying charts, Create, manage, and format pivot tables and pivot charts. Printing the Worksheet.

UNIT–IV

Working with functions - Date and time function, Statistical function, Mathematical and Trigonometric functions, Text function, Logical functions, other computations, using data analytics tools and what if analysis- data sort, fill, query, filter etc.

References / Textbooks:

1. Murdick& Ross, Introduction to Management Information Systems, Prentice Hall (1977).

2. Muneesh Kumar, Business Information Systems, Vikas Publishing (1998), 1st edition.

3. Silberschatz, Korth&Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.

4. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.

5. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).

6. Peter Norton, Introduction to Computers, McGraw Hill Education (2017), 7th edition.

Bachelor of Science(Economics) Semester VI
Session 2024-25
COURSE CODE: BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                    Theory: 50
                                                                    Practical: 30
                                                                    CA: 20

Practical on business data processing.