

FACULTY OF SCIENCES

SYLLABUS

of

B.Sc. Computer Science

(Semester I,III,V)

(Under Continuous Evaluation System)

Session: 2020-21



The Heritage Institution

KANYA MAHA VIDYALAYA

JALANDHAR

(Autonomous)

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

B.Sc. Computer Science

Session-2020-21

SemesterI								
Course Code	Course Name		Course Type	Marks			Examination time (in Hours)	
				Total	Ext.			CA
					L	P		
BCSL-1421 BCSL-1031 BCSL-1431	Punjabi(Compulsory) Basic Punjabi Punjab History and Culture		C	50	40	-	10	3
BCSL-1212	English (Compulsory)		C	50	40	-	10	3
BCSM -1333	Mathematics (Algebra)	I	C	100	80 (40+40)	-	20	3+3
	Mathematics (Calculus and Trigonometry)	II						
BCSM-1134	Computer Science (Computer Fundamentals & PC Software)		C	100	50	30	20	3+3
	Computer Science (Practical) (P)							
BCSM-1395	Physics (Mechanics)	I	C	100	60 (30+30)	20	20	3+3+3
	Physics(Electricity And Magnetism)	II						
	Physics Practical	P						
AECD-1161	*Drug Abuse: Problem Management and Prevention (Compulsory)		AECC	50	40	-	10	3
SECF-1492	*Foundation Course		VBCC	25	25	-	-	2
Total				400				
SemesterIII								
Course Code	Course Name		Course Type	Marks			Examination time (in Hours)	
				Total	Ext.			CA
					L	P		
BCSL-3421 BCSL-3031 BCSL-3431	Punjabi(Compulsory) Basic Punjabi Punjab History and Culture		C	50	40	-	10	3
BCSL-3212	English (Compulsory)		C	50	40	-	10	3
BCSM-3333	Mathematics (Analysis)	I	C	100	80 (40+40)	-	20	3+3
	Mathematics (Analytical	II						

	Geometry)								
BCSM-3134	Computer Science (Computer Oriented Numerical And Statistical Methods)		C	100	50	30	20	3+3	
	Computer Science Practical (P)								
BCSM-3395	Physics(Statistical Physics & Thermodynamics)		C	100	60 (30+30)	20	20	3+3+3	
	Physics(Optics)								II
	Physics Practical								P
AECE-3221	*EVS (Compulsory)		AC	100	60	20	20	3	
SECP-3512 Or	*Personality Development Course/*Gender Sensitization		AC	25	Grade only			1	
Total				400					
SemesterV									
Course Code	Course Name		Course Type	Marks				Examination time (in Hours)	
				Total	Ext.		CA		
					L	P			
BCSL-5421 BCSL-5031 BCSL-5431	Punjabi(Compulsory) Basic Punjabi PHC		C	50	40	-	10	3	
BCSL-5212	English (Compulsory)		C	50	40	-	10	3	
BCSM -5333	Mathematics (Dynamics)	I	C	100	80 (40+40)	-	20	3+3	
	Mathematics (Number Theory)	II							
BCSM-5134	Computer Science (Database Management System & Oracle)		C	100	50	30	20	3+3	
	Computer Science Practical (P)								
BCSM-5395	Physics (Condensed Matter Physics)	I	C	100	60 (30+30)	20	20	3+3+3	
	Physics(Nuclear Physics)	II							
	Physics Practical	P							
Total				400					

***Marks of these papers will not be added in total marks and only grades will be provided.**

C-Compulsory

E-Elective

AECC- Ability Enhancement Compulsory Course

VBCC- Value Based Compulsory Course

Programme Specific Outcomes – B. Sc. C.Sc. (Phy. C.Sc. Maths.)

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

PSO 1. Demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics and computers.

PSO 2. Solve mathematical problems by critical understanding, analysis and synthesis.

PSO 3. Demonstrate knowledge of mechanics, electromagnetism, quantum mechanics, optics & lasers, waves & vibrations, statistical physics, condensed matter physics, electronics, nuclear & particle physics and be able to apply this knowledge to analyse a variety of physical phenomena.

PSO 4. Demonstrate knowledge of various languages of Computer programming and apply this knowledge to interpret and analyse quantitative data.

PSO 5. Show that they have learned laboratory skills, enabling them to take measurements in a physics laboratory and analyse the measurements to draw valid conclusions.

PSO 6. Capable of oral and written scientific communication i.e. able to communicate effectively by oral, written, computing and graphical means.

Session 2020-21

Semester I

PUNJABI (COMPULSORY)

COURSE CODE- BCSL -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 XkokoK ns/ ethnK pko/ frnkB jkf;b eo ;eD.

CO2: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.

CO3;;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?.

CO4: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[i kro eoBk j?.

CO6: X[Bh ftT[As gVQD Bkb ftfdnkoEh X[BhnK dh T[ukoB gqDkbh s'A tke| j'Dr/.

BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE - BCSL -1031

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?.

CO2:fJ; ftu ftfdnkoEh B{z pkohephBh Bkb GkPk dk nfXn?B eotkfJnk ikt/rk.

CO3:ftfdnkoEhnK B{z gzikph Ppd ouBk s'A ikD{ eotkfJnk ikt/rk.

CO4:w[ZYbh gzikph gVQkT[D dk wB'oE ftfdnkoEhnK B{z fBZs tos'A dh gzikph Ppdktbh pko/ dZ;Dk j?.

CO5:w[ZYbh gzikph gVQkT[D dk wB'oE ftfdnkoEhnK dk Ppd x/ok ftPkb eoBk j?.

CO6: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?.

(Semester-I)
Session 2020-21

Course Title: Punjab History and Culture (From Earliest Times to C 320)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)

Course Code: BCSL-1431

COURSE OUTCOMES

After completing Semester I and course on Punjab History and Culture students of History will be able to identify and have a complete grasp on the sources & writings of Ancient Indian History of Punjab.

CO1: Identify and describe the emergence of earliest civilizations in: Indus Valley Civilization and Aryan Societies.

CO2: Identify and analyses the Buddhist, Jain and Hindu faith in the Punjab

CO3: Analyses the emergence of Early Aryans and Later Vedic Period, their Society, Culture, Polity and Economy

CO4: To make students understand the concepts of two faiths Jainism and Buddhism, its principles and their application and relevance in present times

Session 2020-21
ENGLISH (COMPULSORY)
Course Code: BCSL -1212

COURSE OUTCOMES

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

- CO 1:** appreciate the writings of various Indian and foreign story and prose writers and relate them to their socio-cultural milieu
- CO 2:** comprehend the meaning of texts and answer questions related to situations, episodes, themes and characters depicted in them
- CO 3:** understand fundamental grammatical rules governing tenses, the use of modal verbs and make correct usage in their language
- CO 4:** develop an understanding of translation of written text from Hindi/Punjabi to English
- CO 5:** independently write paragraphs on any given topic.

Bachelor of Science (Computer Science) Semester–I
Session: 2020-21
Course Title: Mathematics (Calculus and Trigonometry)
Course Code: BCSM -1333(II)

Course Outcomes

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

- CO 1:** Understand real number system, lub& glb of set of real numbers, limit of a function, basic properties of limit & to apply it in real world problem.
- CO 2:** Analyse continuous and discontinuous function, Apply concept of continuity in uniform continuity.
- CO 3:** Manage to solve problems related to successive differentiation, Leibnitz theorem, Taylor's & Maclaurin's theorem with various forms of remainders and to use these expansion to compute values of Sine, Cosine, tangent or log function.

CO 4: Understand the concept of De Moivre's theorem & its applications. Identify circular, hyperbolic function and their inverses and use these function to describe the shape of the curve formed by high voltage line suspended between two towers.

CO 5: Demonstrate exponential and logarithmic function of complex numbers, and to solve Gregory's series and summation of series.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- I**

Session 2020-21

Course Code: BCSM-1134

**COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS& PC SOFTWARE)**

Course Outcomes:

After passing this course the student will be able to:

CO1: have knowledge of Computer components - hardware and software.

CO2: use computer system for general tasks at user level, including operative systems and programming environments.

CO3: gain knowledge on office automation software and recognize when to use a particular office program to create professional and academic documents.

**SEMESTER-I
PHYSICS
MECHANICS
(THEORY)**

Course code: BCSM-1395 (I) for B.Sc. (Computer Science)

Course Outcomes: Mechanics -Paper (A)

After passing this course, students will be able to:

CO1: Understand the various coordinate systems and its applications. Students will be able to know the conservations laws and the symmetries of space & time.

CO2: Know the fundamental forces of nature, concept of centre mass, central forces and the motion of particle under central force and to determine the turning points of orbit.

CO3: Understand the frames of reference, coriolis force forces and its applications and effect of rotation of earth on g.

CO4: understand the elastic collision in different systems, cross section of elastic scattering as well as Rutherford scattering and know the motion of rigid body.

**SEMESTER-I
PHYSICS
ELECTRICITY AND MAGNETISM
(THEORY)**

Course code: BCSM-1395 (II) for B.Sc. (Computer Science)

Course Outcomes: Electricity and magnetism

After passing this course the students will be able to:

CO1: understand the vector calculus and vector algebra and its applications in electricity and magnetism. The students will be able to solve the electrostatic problems with the help of Gauss law and Coulomb's law.

CO2: understand the applications of scalar potential for the calculation of electric field and electric potential due to an arbitrary charge distribution.

CO3: solve the problems with the help of method of images and understand the conduction of electric current and fundamental laws of electricity.

CO4: relate the electric and magnetic fields in two inertial frames of reference.

SEMESTER–I
PHYSICS
PHYSICS PRACTICAL
Course code: BCSM-1395 (P) for B.Sc. (Computer Science)

Course Outcomes : Physics Lab Sem I

CO1: Students will be able to find the value of acceleration due to gravity using pendulums.

CO2 : It will give understanding of collisions In 1-Dimension.

CO3: It helps to study the moment of inertia of a body & on what factors its depends.

SEMESTER – I
DRUG ABUSE
Course Code: AECD-1161
(Theory)

Course Outcomes:

- CO 1. This information can include factual data about what substance abuse is; warning signs of addiction; information about how alcohol and specific drugs affect the mind and body;
- CO 2. How to be supportive during the detoxification and rehabilitation process.
- CO 3. Main focus of substance abuse education is teaching individuals about drug and alcohol abuse and how to avoid, stop, or get help for substance use disorders.
- CO 4. Substance abuse education is important for students alike; there are many misconceptions about commonly used legal and illegal substances, such as alcohol and marijuana.

SESSION 2020-21

Semester III

PUNJABI (COMPULSORY)

COURSE CODE- BCSL -3421

COURSE OUTCOMES

CO1: u'Dt/ gzikph fBpzX Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo
□□□□ gqshfdbu;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 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.

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?.

CO5: w{b ftnkeoDe fJekJhnK L gfoGkPk ns/ tzBrhnK (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?.

SESSION 2020-21

SEMESTER-III

Basic Punjabi (In lieu of Punjabi Compulsory)

COURSE CODE- BCSL -3031

Course outcomes

CO1:ivAwkrxk iekweIAW 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 ns/ gzikph GkPk B{z f;ykT[D dh gqfefonk ftu gk e/ fJe j'o GkPk f;ZyD d/ w"e/ gqdkB eoBk j?.

CO2:g?oQk ouBk d/D dk wB'oE ftfdnkoEhnK dh p[ZXh B{z shyD eofdnK T[BQK dh fbyD gqfsGk B{z T[iKro eoBk j?.

CO3:xo/b{ ns/ d|soh fuZmh gZso fbyD dk wB'oE ftfdnkoEhnK B{z fJ; ebk ftu fBg[zB eoBk j?!

CO4:nykD ns/ w[jktfonK dh tos'A Bkb rZbpks ftu gogZesk nkT[Adh j?.fJj ftfdnkoEhnK dh rZbpks ftu fByko fbnkT[D dk ezW eoBr/.

CO5: g?oQk gVQ e/ gqPBK d/ TZ[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?.

CO6;;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.

(Semester III)

Session 2020-21

COURSE TITLE: PUNJAB HISTORY AND CULTURE (FROM 1000-1605 A. D.)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

COURSE CODE: BCSL-3431

After completing the paper the students will have a thorough insight into the origin of Sikh faith and its major institutions in Punjab

CO 1: To able to construct original historical arguments using a blend of primary and secondary source material

CO 2: To be able to demonstrate the significance of historical topics with reference to broader historical context and their contemporary relevance

CO 3: Students will develop an ability to convey verbally their historical knowledge

CO 4: Students will develop skills in critical thinking and reading

CO 5: To discuss understand and evaluate causes and results of the conflict with Mughals

Session 2020-21
ENGLISH (COMPULSORY)
Course Code: BCSL -3212

COURSE OUTCOMES

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

CO 1: 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

CO 2: comprehend the basics of grammatical rules governing relative clauses, adjectives, adverbs, conjunctions and prepositions

CO 3: enhance their reading and analysing power of texts through guided reading

CO 4: enrich their vocabulary and use new words in their spoken and written language

CO 5: develop skills to write an essay on a given topic

Bachelor of Science (Computer Science) Semester–III

Session: 2020-21

Course Title: Mathematics (Analysis)

Course Code: BCSM -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 and series.

CO 2: To understand the concepts of Riemann sum, partitions, upper and lower sums, Riemann integrability of continuous functions and of monotone functions.

CO 3: To know and describe the converging behavior of improper integrals and Beta , Gamma functions.

CO 4: Distinguish between the absolute convergence and conditional convergence.

CO 5: To find the relation between Beta and Gamma functions.

Bachelor of Science (Computer Science) Semester–III

Session: 2020-21

Course Title: Mathematics (Analytical Geometry)

Course Code: BCSM/-3333(II)

Course Outcomes

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

CO 1: Understand the concept of the geometry of lines and conics in the Euclidian plane.

CO 2: Develop geometry with a degree of confidence and will gain fluency in the basics of Euclidian geometry.

CO 3: Sketch conic sections; identify conic sections, their focal properties and classifications.

CO 4: Demonstrate the concept of parabola, ellipse, hyperbola, sphere and the general quadratic equation.

CO 5: Understand the concept of coordinate geometry on a wider scale with the help of shifting of origin and rotation of axis.

**Bachelor of Science (Computer Science)
Semester- III**

**Session 2020-21
Course Code: BCSM-3134**

**COMPUTER SCIENCE
(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)**

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand numerical methods, nonlinear equations, interpolation methods and Simultaneous Solution of Equations.

CO2: Learn about Interpolation and Curve Fitting and Numerical differentiation.

CO3: Learn Correlation, Regression, Bivariate & Multivariate distribution and Interpretation of Trend Analysis.

Semester III

Course Outcomes: PHY-Statistical Physics and Thermodynamics

Course code: BCSM-3395 (I)

After passing this programme the students will be able to:

- CO1: Understand the basic ideas and scope of probability as well as distribution of n particles in different compartments.
- CO2: Concept of different types of Statistics and the need for Quantum Statistics.
- CO3: Understand the concept of entropy, Laws of Thermodynamics and applications to thermoelectric effect.
- CO4: Understand the Maxwell Thermodynamics relations, Change of state and Claypron equation.

Course Outcomes: PHY-OPTICS

Course code: BCSM-3395 (II)

After passing this programme the students will be able to:

- CO1: understand the concept of interference of waves by division of wave front and its different methods and concept of coherence.
- CO2: understand the interference of waves by division of Amplitude and its methods and will have knowledge of interferometers
- CO3: understand the Huygen's Fresnel theory and diffraction, Fraunhofer diffraction due to single slit, double slit and n slits, the concept of resolving power.
- CO4: understand the concept the polarization of light and types of polarisers.

Course Outcomes: SEMESTER–III PHYSICS (PRACTICAL)

Course code: BCSM-3395 (P)

After passing this programme the students will be able to:

- CO1: use spectrometer to determine the refractive index of different transparent materials wills dispersive power and resolving power of different transparent prisms and liquids using spectrometer.
- CO2: use diffraction grating and apply it to determine dispersive power, resolving power, the wavelengths of Hg source and the Cauchy's constants.
- CO3: to measure an accessible (Horizontal and vertical) and inaccessible heights using sextant.
- CO4: set up of Newton's rings to determine wavelength of sodium light.
- CO5: demonstrate the verification of laws of probability distribution.

SESSION 2020-21

Semester V

PUNJABI (COMPULSORY)

COURSE CODE- BCSL -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 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 ;jkJh j't/rh.

CO4: ;ob nzro/Ih g?oQ/ 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?.

CO5: gzikph X[Bh ftTaa[As, tkekswe i[rsK L w/b s/ nfXeko,ekoe s/ ekoeh ;zpzX Bz{ gVQkT[D dk wB'oE ftfdnkoEhnK nzdo GkPk dh nwhoh ns/ pkohehnK Bz{ ;wMD bJh tZyo/ - tZyo/ f;XKsK dk ftek; eoBk j?.

SESSION 2020-21

SEMESTER-V

Basic Punjabi (In lieu of Punjabi Compulsory)

COURSE CODE- BCSL -5031

COURSE OUTCOMES

CO1: `;kfjs d/ ozr' g[[[;se d/ 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 ub ojhnK ekft XkoktK ns/ ethnK pko/
frnkB jk;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: `;kfjs d/ ozr' g[[[;se d/ ejkDh Gkr B{z f;b/p; ftu PkfwB eo
e/ ftfdnkoEhnK nzdo ejkDh gVQD dh o[uh Bz{ g?dk eoBk j? ns/
ejkDh irs Bkb i'VDk j?.

CO3: pj[s/ PpdK dh EK fJe Ppd ns/ pj[nkoEe Ppd Bz{ gVQkT[D dk
wB'oE ftfdnkoEhnK nzdo ftnkeoD gqsh fdbu;gh, ;{M Bz{ g?dk eoBk
j?.

CO4: ;wkBoEe Ppd, fto'XkoEe Ppd Bz{ gVQkT[D dk wB'oE
ftfdnkoEhnK nzdo ftnkeoD gqsh fdbu;gh, ;{M Bz{ g?dk eoBk
j?.

(Semester-V)

Session 2020-21

Course Title: Punjab History and Culture (From 1849-1947 A.D)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

COURSE CODE: BCSL-5431

COURSE OUTCOMES:-

After completing the course student have understanding of Punjab in the pre-independence phase

CO 1:- Students will understand major changes in the Punjab during British Rule

CO 2:- They will also know about important agitations and their outcomes on the politics of the Punjab.

CO 3:- They will gain knowledge about the society and economy of Punjab

CO 4:-They will be able to evaluate the socio-religious reforms movements of Punjabi society

CO 5:- They will have insights into the details of the partition of Punjab

Session 2020-21
ENGLISH (COMPULSORY)
Course Code: BCSL -5212

COURSE OUTCOMES

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

CO 1: widen their knowledge about various literary devices used in poetry such as tone, style, imagery, figures of speech, symbolism etc.

CO 2: develop power of imagination and appreciate the beauty, rhyme, and style of a poem

CO 3: analyze and appreciate the dramatic technique, plot development and art of characterisation in the prescribed play

CO 4: develop an understanding of the insights, genres, conventions and experimentations associated with English Drama

CO 5: develop the knowledge, skills and capabilities for effective business writing such as letter writing and resume writing

Bachelor of Science (Computer Science) Semester–V

Session: 2020-21

Course Title: Mathematics (Dynamics)

Course Code: BCSM -5333(I)

Course Outcomes

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

CO 1: Identify the basic relations between distance, time, velocity and acceleration.

CO 2: Explain the relationship between forces and motion. Differentiate between balanced and unbalanced forces and Explain how unbalanced force affect motion.

CO 3: Understand Newton's Laws of Motion and Apply the laws to solve many problems.

CO 4: Discuss the motion of particles connected by a string, motion along a smooth inclined plane.

CO 5: Solve different types of problems with Variable Acceleration.

CO 6: Discuss Simple Harmonic Motion and Illustrate it with a variety of examples.

CO 7: Solve Pendulum, Damped and forced Oscillations oscillating system problems.

CO 8: 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.

CO 9: Define Energy and Identify the different types that exist

Bachelor of Science (Computer Science) Semester–V

Session: 2020-21

Course Title: Mathematics (Number Theory)

Course Code: BCSM -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: Solve system of linear congruences.

CO 3: Find solutions of specified linear Diophantine equation.

CO 4: Apply Fermat's and Euler's theorem to prove relation involving prime numbers.

CO 5: Apply the Wilson's theorem to solve numerical problems.

CO 6: Solve system of equations using congruences.

CO 7: Understand and apply properties of phi functions in real world problems.

CO 8: Understand application of important arithmetic functions.

**Bachelor of Science (Computer Science)
- Semester–V**

Session 2020-21

COURSE CODE: BCSM-5134

**COMPUTER SCIENCE
(DATA BASE MANAGEMENT SYSTEM & ORACLE)**

Course Outcomes:

After passing course the student will be able to:

CO1: Understand data, database and database models.

CO2: Gain knowledge of normalization and transaction control.

CO3: Gain knowledge of core database language-SQL.

CO4: Have a basic understanding of concepts of PL/SQL.

**Bachelor of Science (Semester System) (12+3 System of Education)
(Semester–V) (Session 2020-21)**

**PHYSICS (CONDENSED MATTER PHYSICS)
(THEORY)**

Course code: BCSM-5395 (I) for B.Sc. (Computer Science)

Course Outcomes

After passing this course, students will be able to:

- CO 1. Understand basics about crystal structures in solids, various types of crystal structure, unit cells and symmetry operations.
- CO 2. Understand the experimental methods to determine crystal structures, reciprocal lattice, Brillouin zones and form factor.
- CO 3. Understand the concept of lattice vibrations and role of phonons in determining specific heat of solids at low temperatures and models of specific heat.
- CO 4. Build concept from free electron model to Kronig Penny model and its application to band theory to differentiate insulators, semiconductors and conductors.

Bachelor of Science (Semester System) (12+3 System of Education)
(Semester–V) (Session 2020-21)
PHYSICS (NUCLEAR PHYSICS)
(THEORY)

Course code: BCSM-5395 (II) for B.Sc. (Computer Science)

Course Outcomes

After passing this course, students will be able to:

- CO 1. Understand basic properties of nucleus and nuclear forces.
- CO 2. Understand about radioactivity, theories of alpha, beta and gamma decay, neutrino hypothesis.
- CO 3. Understand concepts and types about nuclear reactions, reactions cross section and compound nucleus.
- CO 4. Understand nuclear models (Liquid drop and Shell model) and their failures and successes.

Bachelor of Science (Semester System) (12+3 System of Education)
(Semester–V) (Session 2020-21)
PHYSICS PRACTICAL

Course code: BCSM-5395 (P) for B.Sc. (Computer Science)

Course Outcomes : Physics Lab Sem V

- CO 1. Students will be able to characterize p-n junction, zener diode, LED and LDR.
- CO 2. Student will be able to use CRO for AC, DC, voltages and frequencies.
- CO 3. Student will be able to understand the use of GM counter.

