

Govt. Shivalik College Naya Nangal
(Computer Department)
Course Outcome of BCA (2022-23)

BCA 1st Year (Sem I)

1 General English –I

(I). PROSE PARABLES:-

- To develop the language ability of the students.
- To enable the students to comprehend the idea contained in the prose.
- To develop an appreciation for the literary content.
- To enhance creative and critical thinking.
- To familiarize with eminent prose writers and their works.

(ii) .GRAMMAR (RAYMOND MURPHY, ENGLISH GRAMMAR):-

- 1. The students will gain knowledge of the correct use of past and present tense in writing.
- 2. The students will understand the English language better.
- 3. It enables them to understand how sentences are formed.

2 Punjabi Compulsory or Mudla Gyan

(i) Noval bathak de khambajehesafed din:-

Students will be information about Punjabi culture students will be able able to describe the nature of the characters related noval and writers writing style.

(ii) Grammar :-

Sentence structure and speaking ability increase through grammar

3 Fundamental of Information Technology

- Understand the computer and its general features
- Understand basic concepts and terminology of information technology
- Will be to able express basic computer hardwares
- Distinguish computer types and basic concepts
- Know and use different number systems and the basics of programming.
- Have a basic understanding of personal computers and their operations

4 Programming Using C

- Develop a C program
- Control the sequence of the program and give logical outputs
- Implement strings in C program
- Store different data types in the same memory
- Manage I/O operations in your C program
- Repeat the sequence of instructions and points for a memory location
- Apply code reusability with functions and pointers
- Understand the basics of file handling mechanisms
- Explain the uses of pre-processors and various memory models

5 Software Lab –I (Windows and Office Automation)

- to perform documentation
- to perform accounting operations

- to perform presentation skills

6 Software Lab –II(Programming Fundamental Using C)

- Understanding a functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.
- Understanding a defensive programming concept. Ability to handle possible errors during program execution

BCA 1st Year(Sem II)

1 General English –I

(i) POETIC PALETTE:-

- To analyze various elements of poetry such as diction, tone, form, genre, imagery, figures of speech, symbolism themes etc.
- Recognize the rhythms, metrics and other aspects of poetry.
- Develop an appreciation of language and style. Understand the thought and imagination contained in the poem correlating it with contemporary scenario.
- Understand the development of poetry from the beginning to the modern age. 6. Inculcate their aesthetic sense and love for English poetry.

(ii) Grammar(RAYMOND MURPHY, ENGLISH GRAMMAR):-

- Ability to be comfortable with English in use while reading or listening.
- Ability to use receptive skills through reading and listening to acquire good exposure to language and literature.
- Ability to write and speak good English in all situations.

2 Punjabi Compulsory or Mudla Gyan

(i) Neband de book:-

Students will be able to explain Punjabi literature thought the neband the students will know about the ideology of related to the characters.

(ii) Grammar:-

Sentence structure and speaking ability increase through grammar.

3 Digital Electronics

- Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.
- To understand and examine the structure of various number systems and its application in digital design.
- The ability to understand, analyze and design various combinational and sequential circuits.
- The ability to identify and prevent various hazards and timing problems in a digital design.

4 Data Structure

- Ability to analyze algorithms and algorithm correctness.
- Ability to summarize searching and sorting techniques

- Ability to describe stack,queue and linked list operation.
- 4Ability to have knowledge of tree and graphs concepts.

5 BasicMathematics

- To impart the required knowledge of Mathematics and statistics for managerial activities among students.
- To inculcate in students the fundamental mathematical background in computer science.
- Understand the basic concepts of Sets, Relations Functions, Matrices, Mathematical logic, and Group theory.
- Develop analytical ability to solve real-world problems using these methodologies

6 Software lab – III(based on data structure)

- 1: Understand the concept of data structures and apply algorithm for solving problems like Sorting, searching, insertion and deletion of data.
- 2: Understand linear data structures for processing of ordered or unordered data.
- 3: Explore various operations on dynamic data structures like single linked list, circular linked list .
- 4: Explore the concept of non linear data structures such as trees and graphs.
- 5: Understand the binary search trees, hash function.

Programme Outcome of BCA 1st Year (2022-23)

- Acquire skills and information not only about Computer and Information Technology but also in communication, organization and management.
- Information about various computer applications and latest developments in IT and communication systems is also provided.
- Get to learn programming languages such as C, C++
- An ability to apply knowledge of mathematics, computer science and management in practice
- An ability to communicate effectively

COURSE OUTCOME

B.COM 1st YEAR (SEM 1&2)

S . N	COURSE NAME	COURSE CODE	OUTCOMES
1	PUNJABI/ MUDHLA GYAN	COMB1101T /COMB1102T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.
2	ENGLISH	COMB1103T	<ul style="list-style-type: none"> • Students will improve their speaking ability in English both in terms of fluency and comprehensibility • Students will give oral presentations and receive feedback on their performance • Students will increase their reading speed and comprehension of academic articles
3	FINANCIAL ACCOUNTING- 1	COMB1104T	<p>Objective of this course is to acquire conceptual knowledge of financial accounting and to provide knowledge about the technique for preparing accounts in different business organization. The student will be in position to understand treatment of specific transaction like royalty, hire-purchase and branches etc.</p> <p>This will also help in gaining Apply accounting techniques and methods for the formation, dissolution, partner changes, earnings distribution, and liquidation of partnerships.</p>
4	BUSINESS LAWS 1	COMB1106T	<ol style="list-style-type: none"> 1. On completion of this course, learners will be able to: appreciate the relevance of business law to individuals and businesses and the role of law in an economic, political and social context. 2. Identify the fundamental legal principles behind contractual agreements. 3. Examine how businesses can be held liable in tort for the actions of their employees. 4. Understand the legal and fiscal structure of different forms of business organizations and their responsibilities as an employer. 5. Acquire problem solving techniques and to be able to present coherent, concise legal argument.
5	COMPUTER APPLICATION IN	COMB1107T	It will equip the students with skills required for designing, developing applications in

	BUSINESS		Information Technology. Students will be able to learn the latest trends in various subjects of computers & information technology. To give hands on to students while developing real life IT application as part of the study. To train graduate students in basic computer technology. Design and develop applications to analyze and solve all computer science related problems.
6	PRINCIPLES OF ECONOMIC S-1	COMB1105T	<ol style="list-style-type: none"> 1. Demonstrate knowledge and understanding of core economics concepts, tools and models. 2. Apply economic concepts to real world scenarios, and use that analysis to make informed judgements and decisions. 3. Interpret, analyse and depict economic information in diagrams, tables and graphs. 4. Communicate economic knowledge, ideas and analysis, both orally and in writing. 5. Reflect on the nature and implications of assumptions and value judgements in economic analysis and policy.
7	PUNJABI/ MUDHLA GYAN	COMB1201T /COMB1202T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.

8	ENGLISH	COMB1203T	<ul style="list-style-type: none"> • Students will improve their speaking ability in English both in terms of fluency and comprehensibility • Students will give oral presentations and receive feedback on their performance • Students will increase their reading speed and comprehension of academic articles
9	FINANCIAL ACCOUNTING-2	COMB1204T	<p>Objective of this course is to acquire conceptual knowledge of financial accounting and to provide knowledge about the technique for preparing accounts in different business organization. The student will be in position to understand treatment of specific transaction like royalty, hire-purchase and branches etc. This will also help in gaining Apply accounting techniques and methods for the formation, dissolution, partner changes, earnings distribution, and liquidation of partnerships.</p>
10	BUSINESS LAWS 2	COMB1207T	<p>On completion of this course, learners will be able to: appreciate the relevance of business law to individuals and businesses and the role of law in an economic, political and social context. Identify the fundamental legal principles behind contractual agreements.</p>

			Examine how businesses can be held liable in tort for the actions of their employees. Understand the legal and fiscal structure of different forms of business organizations and their responsibilities as an employer. Acquire problem solving techniques and to be able to present coherent, concise legal argument
11	BUSINESS MATHEMATICS	COMB1205T	Explain the concepts and use equations, formulae, and mathematical expressions and relationships in a variety of contexts. Apply the knowledge in mathematics (algebra, matrices, calculus) in solving business problems Analyse and demonstrate mathematical skills required in mathematically intensive areas in Economics and business. Integrate concept in international business concepts with functioning of global trade
12	PRINCIPLES OF ECONOMIC S-2	COMB1206T	<ol style="list-style-type: none"> 1. Demonstrate knowledge and understanding of core economics concepts, tools and models. 2. Apply economic concepts to real world scenarios, and use that analysis to make informed judgements and decisions. 3. Interpret, analyse and depict economic information in diagrams, tables and graphs. 4. Communicate economic knowledge, ideas and analysis, both orally and in writing. <p>Reflect on the nature and implications of assumptions and value judgements in economic analysis and policy.</p>

COURSE OUTCOMES**B.COM 2nd YEAR (SEM 3&4)**

S . N	COURSE NAME	COURSE CODE	OUTCOMES
1	PUNJABI/ MUDHLA GYAN	COMB2301T /COMB2302T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.
2	ENGLISH	COMB2303T	<ul style="list-style-type: none">• Students will improve their speaking ability in English both in terms of fluency and comprehensibility• Students will give oral presentations and receive feedback on their performance• Students will increase their reading speed and comprehension of academic articles
3	PRINCIPLE OF BUSINESS MANAGEMENT	COMB2304T	<p>To help the students gain understanding of the functions and responsibilities of managers. To provide them tools and techniques to be used in the performance of the managerial job. To enable them to analyze and understand the environment of the organization. To help the students to develop cognizance of the importance of management principles. On completion of this course, the students will be able to Understand the concepts related to business. Demonstrate the roles, skills and functions of management.</p> <p>Analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions.</p> <p>Understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.</p>

4	CORPORATE ACCOUNTING-1	COMB2305T	Construct the financial statements of company within the frame work of Ind AS. Devise a plan for Redemption of Preference shares. Reconstruct the capital structure in the financial statement of Joint stock company ltd. Evaluate the Restructuring of capital structure of public company ltd. Develop the procedure involved in Amalgamation of companies. Develop the procedure involved in Absorption of companies
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			Illustrate the implication of unethical accounting practices on the society
5	INCOME TAX LAW -1	COMB2306T	It enables the students to insights the basics of Income Tax Act and its implications in computing tax liability of an individual. Understand the application of business Knowledge in both theoretical and practical aspects. Determine the procedures and schedules to be followed on preparing financial statements of Companies.
6	BUSINESS STATISTICS	COMB2307T	After successful completion of the course students will be able to summarize and analyze statistical data to solve practical business related problems. After successful completion of the course students will be able to interpret the relevance of statistical findings for business problem solving and decision making. After successful completion of the course students will be able to apply technology to statistical analysis and problem solving.

7	PUNJABI/ MUDHLA GYAN	COMB2401T /COMB2402T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.
8	ENGLISH	COMB2403T	<ul style="list-style-type: none"> • Students will improve their speaking ability in English both in terms of fluency and comprehensibility • Students will give oral presentations and receive feedback on their performance • Students will increase their reading speed and comprehension of academic articles
9	COMPANY LAW	COMB2404T	<p>The course is designed to understand the formation, management and other activity of the companies. In view of the changing facts of global governance corporate governance plays a vital role in the development of an economy both national and international level. The companies Act 1956 has not been repealed but certain provisions replaced by the new Act of 2013. The notified sections which replace the provisions of Companies Act 1956 will be highlighted.</p> <p>Accordingly the paper aims to introduce to the students the nuance of corporate law and the obligations of it towards society in discharging its trade relations and to be a good corporate citizen. Therefore the paper needs to be taught in light of the New companies Amendment Act 2013.</p> <p>Teaching Learning Methods : Lectures including special lectures of experts may be a good process of learning.</p> <p>Interactive sessions, Tutorials, Projects and Paper Presentation are the good forms of teaching and learning.</p>

10	CORPORAT E ACCOUNTING -2	COMB2405T	<p>Construct the financial statements of company within the frame work of Ind AS. Devise a plan for Redemption of Preference shares. Reconstruct the capitalstructure in the financial statement of Joint stock company ltd. Evaluate the Restructuring of capital structure of public company ltd. Develop the procedure involved in Amalgamation of companies. Develop the procedure involved in</p> <p>Absorption of companies Illustrate the implication of unethical accounting practiceson the society</p>
11	INCOME TAX LAW -2	COMB2406T	<p>It enables the students to insights the basics of Income Tax Act and its implications in computing tax liabilityof an individual. Understand the application of business Knowledge in both theoretical and practical aspects. Determine the procedures and schedules to be followed on preparing financial statements of Companies.</p>
12	OPERATION RESEARCH	COMB2407T	<p>Students who pass the course will be able to use different mathematical modeling techniques solve a problem modeled with LP comprehend the solution of an LP model understand the sensitivity of a solution to the changes at the parameters of the problem use some computer software to model, solve and analyze a linear model identify whether a solution is optimal or not solve and analyze transportation and assignment problems with related methods</p>

COURSE OUTCOMES
B.COM 3rd YEAR (SEM-4&5)

S . N	COURSE NAME	COURSE CODE	OUTCOMES
1	PUNJABI/ MUDHLA GYAN	COMB3501T / COMB3502T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.
2	MANAGEMENT ACCOUNTING- 1	COMB3503T	The objective of this course is to expose the student to the applied aspect of accounting and making them familiar with the techniques of using accounting information for decision making. Having been introduced to these techniques and having acquired the ability to understand accounting language, the student should be in position to make effective use of accounting information in resolving the business problem, which they may face as manager.
3	COST ACCOUNTING- 1	COMB3504T	To acquaint the students with basic principles underlying the relevant provisions of income tax laws in force for the relevant previous year and to provide an insight into procedural aspects for assessment of tax liability for an individual assesses. Students of the course will be able to explain different types of incomes and their taxability and expenses and their deductibility.
4	INDIRECT TAXES	COMB3505T	This course aims of making students conversant with the concepts of Indian Income tax Act in assessing corporate assesses and insights the provisions and their implications of Goods and Services Tax

5	AUDITING	COMB3506T	<p>This course introduces students to the field of auditing and assurance. It provides students with a sound understanding of fundamental auditing concepts and procedures, and the application of auditing standards. Consequently, the course provides a foundation for students who intend pursuing a specialised pathway in the auditing profession, as well as those who will pursue careers in accounting and other disciplines where principles of risk assessment, systems control and evaluation, and transaction testing are important. While the course focuses mainly on the practical application of an external financial audit that is regulated under legal legislation, it also explores the wider audit and assurance framework; including the internal audit function, and some environmental auditing issues. In addition the course seeks to stimulate a critical appreciation of contemporary auditing and assurance issues.</p>
6	CORPORATE FINANCE	COMB3507T	<p>To provide students with knowledge and skills in taking corporate financial and investment decisions, develop analytic instruments to assess the effectiveness and efficiency of such decisions, elaborate models of corporate financial management</p>

7	PUNJABI/ MUDHLA GYAN	COMB3601T / COMB3602T	The specific outcomes in Language Competence deal with developing knowledge and skills that allow students to use Punjabi effectively and competently.
8	MANAGEMENT ACCOUNTING- 2	COMB3603T	The objective of this course is to expose the student to the applied aspect of accounting and making them familiar with the techniques of using accounting information for decision making. Having been introduced to these techniques and having acquired the ability to understand accounting language, the student should be in position to make effective use of accounting information in resolving the business problem, which they may face as manager.
9	COST ACCOUNTING- 2	COMB3604T	To acquaint the students with basic principles underlying the relevant provisions of income tax laws in force for the relevant previous year and to provide an insight into procedural aspects for assessment of tax liability for an individual assessee. Students of the course will be able to explain different types of incomes and their taxability and expenses and their deductibility.
10	BUSINESS ENVIRONMENT	COMB3605T	Students would be acquainted with business objectives, dynamics of business and environment, various types of business environment and its analysis. Students would recall and relate various concepts like business ethics, ethical

			<p>dilemmas, corporate culture and ethical climate. They would also be acquainted about development of various acts applicable to business in India. Students would describe and discuss Corporate Social Responsibility, Corporate Governance and Social Audit. Students would be acquainted with various strategies of Global Trade. They would also discuss Foreign Trade in India, Foreign Direct Investments and its implications on Indian Industries.</p>
11	ENTREPRENEURSHIP & GOVERNANCE	COMB3606T	<p>1. Entrepreneurship and Innovation minors will be able to sell themselves and their ideas. Students master oral and visual presentation skills and establish a foundation of confidence in the skills necessary to cause others to act.</p> <p>2. Entrepreneurship and Innovation minors will be able to find problems worth solving. Students advance their skills in customer development, customer validation, competitive analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world problems and</p>

			<p>projects.</p> <ol style="list-style-type: none"> <li data-bbox="852 255 1342 651">3. Entrepreneurship and Innovation minors will be able to mobilize people and resources. Students identify and secure customers, stakeholders, and team members through networks, primary customer research, and competitive and industry analyses in order to prioritize and pursue an initial target market in real-world projects. <li data-bbox="852 680 1342 1151">4. Entrepreneurship and Innovation minors will be able to create value. Students are able to create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through 1) company formation (for-profit); 2) social innovation(nonprofit); or 3) intellectual property licensing. <li data-bbox="852 1180 1342 1742">5. Entrepreneurship and Innovation minors will develop and cultivate endurance. Students increase their awareness and deliberately practice the skills and disciplines necessary to increase confidence and agency; foster self-efficacy and self-advocacy; improve communication and problem-solving skills, manage strong impulses and feelings; and identify personal purpose.
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12	FINANCIAL PLANNING	COMB3607T	<ul style="list-style-type: none"> • Integrate ethical decision-making processes into all aspects of the financial planning profession. • Compare, contrast, and select, from appropriate financial products and services, investment planning and counseling services for the public according to industry standards, including taxation counseling. • Effectively market financial products through the development of an inventory of prospective clients, following up with individual sales strategies in pursuit of new and renewal business. • implications within a financial planning situation • Recognise potential tax and legal. • Identify and apply written and verbal client-focused communication styles and strategies.
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Commerce Department

PROGRAMME OUTCOMES

The College is affiliated to the Punjabi University Patiala. Thus, the college follows the guidelines and syllabus prescribed by the Affiliated University.

PROGRAMME:
COMMERCE
Programme Outcomes

PO1 - Enables learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment etc.

PO2 - Develops communication skills and build confidence to face the challenges of the corporate world.

PO3 - Enhances the capability of decision making at personal and professional levels.

PO4 – Makes students industry ready and develop various managerial and accounting skills for better professional opportunities.

PO5 - Develops entrepreneurial skills amongst learners

PO6 - Strengthens their capacities in varied areas of commerce and industry aiming towards holistic development of learners.

PO7 - Thus, after completing their graduation learners develop a thorough understanding of the fundamentals in Commerce and Finance.

Program Specific Outcomes

B.Com

PSO1 - Learners venture into Managerial positions, Accounting areas, Banking Sectors, Auditing, Company Secretaryship, Teaching, Professor, Stock Agents, Government Employment etc.

PSO2 - Enables learners to prove themselves in different Professional examinations like CA, CS, CAT, GRE, CMA, MPSC,UPSC etc.

PSO3 -Learners further move towards research in the field of Commerce.

PSO4- Enables students to demonstrate Progressive learning of various tax issues and tax forms related to individuals and businessmen and setting up their own business start up.

PSO5 – The vast syllabus covers various fields of commerce and accountancy which helps students grasp practical and theoretical knowledge.

Govt. Shivalik college Naya nangal

Course outcomes (session 2022-2023)

Punjabi department

Course name	Course	Outcomes
B.sc 2 nd sem	Novel (kheta da rudan)	Student will be able to describe the nature of characters related novel and writers, writing style. Students will be able to know about different aspects of society.
B.sc 3 rd sem	Book (ugg paatal)	Students will be able to know about space science related Knowledge. Students will be able to briefly explain science and literature.
B.sc 3 rd sem	Grammer	Knowledge about sentence making and Gurbani viyakaran introduction.

Course name	Course syllabus	Outcomes
B.a elective Punjabi 2 nd year	Punjabi story	Students will develop an interest in understanding story ,They will get knowledge about political,social economic aspects of that period.
	Punjabi sahit roop , history of Punjabi sahit	Student will know about Punjabi sahit veeda and history of Punjabi sahit

Course name	Course	Outcomes
B.a 5 th sem	Text book,vartke madkali and adhunik vartak	Students will know about old and morden literature students will be discribe the nature of the characters
	Grammer	Students will be know about sentence making sentence structure and speaking ability,gurmukhi lepi
B.a 6 th sem	Text book lok dhara de bhumika	Students will be able to know about Punjabi culture , traditions fok culture,fok art
	Grammer	Student will be able to know about Punjabi sentence making and gurmukhi lepi

Govt. Shivalik college Naya nangal

Course outcomes(session 2022-2023)

Course name	Course	Outcomes
B.sc 2 nd sem	Novel (kheta da rudan)	Student will be able to describe the nature of characters related novel and writers, writing style. Students will be able to know about different aspects of society.
B.sc 3 rd sem	Book (ugg paatal)	Students will be able to know about space science related Knowledge. Students will be able to briefly explain science and literature.
B.sc 3 rd sem	Grammer	Knowledge about sentence making and Gurbani viyakaran introduction.

Govt shivalik college Naya nangal course outcomes session,2023,2024	Teacher Dr kusum bidla	
Course name	Course	Outcomes
B.a 5 th sem	Text book,vartke madkali and adhunik vartak	Students will know about old and morden literature students will be discribe the nature of the characters
	Grammer	Students will be know about sentence making sentence structure and speaking ability,gurmukhi lepi
B.a 6 th sem	Text book lok dhara de bhumika	Students will be able to know about Punjabi culture , traditions fok culture,fok art
	Grammer	Student will be able to know about Punjabi sentence making and gurmukhi lepi

GOVT. SHIVALIK COLLEGE NAYA NANGAL

Course Outcomes (Session 2022-23)

Faculty of Punjabi Department

Course Code-COMB1101T

Class- B.com 1(sem 1&2)

Course Name	Course/syllabus	Outcomes
B.Com (Sem 1) (Punjabi Compulsory)	Katha Rang(text book)	1. Students will get to know about the ideology of related story writers, qualities and related topics of the creations.
		2. Students will information about punjabi story themes, character's and critical analysis .
	Paragraph/ Essay	3.Student will be able to describe the nature of the related social,cultural and environmental Themes.
		4.Students will be able to explain in detail about mother tongue importance and trade related ideas.

SEM 2nd

Course Code-COMB1201

Course name	Course/ syllabus	Outcomes
B.Com 1 (Sem 2) (Punjabi compulsory)	Vartak- vivek(text book)	1.Student will be able to explain different forms of literature like prose- essay , paragraph etc.
		2.Students describe the various topics of related essay / paragraphs and it's criticism.
	Press report writing and technical words	3.Students will get the information about verses and concepts of press reports.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

Course Outcomes (Session 2022-23)

Faculty of Punjabi Department

Subject Code-SCIB1112T

Class- B.sc-1(M&NM) (sem 1&2)

Course Name	Course/syllabus	Outcomes
B.sc-1 (M&NM) (Sem 1) (Punjabi Compulsory)	Katha Rang(text book)	1. Students will get to know about the ideology of related story writers, qualities and related topics of the creations.
		2. Students will information about punjabi story themes, character's and critical analysis .
	Paragraph/ Essay	3.Student will be able to describe the nature of the related social,cultural and environmental Themes.
		4.Students will be able to explain in detail about mother tongue importance and science related ideas.

SEM 2nd

Course Code-SCIB1212T

Course name	Course/ syllabus	Outcomes
B.sc-1 (M&NM) (Sem 2) (Punjabi compulsory)	Vartak- vivek(text book)	1.Student will be able to explain different forms of literature like prose- essay , paragraph etc.
		2.Students describe the various topics of related essay / paragraphs and it's criticism.
	Press report writing and technical words	3.Students will get the information about verses and concepts of press reports.

Govt. Shivalik college, Naya Nangal

Programme Outcomes

Course – B.A

Punjabi Department

GENERAL PUNJABI:-

1. To develop a bonding with the mother tongue of the students.
2. The students gets to know and understand his/her native language in a far better way.
3. The students gains the knowledge and understanding of the various intricacies of the grammar and literature of Punjabi.
4. The students gains the knowledge and understanding of the rich folk culture and heritage of Punjabi.
5. The students know about vocabulary and basic grammar. 6. The students know how to study language and literature.
7. The students know the difference between prose and poetry as a form of literature.
8. To develops the skills of students in Punjabi.
9. To enriches vocabulary through learning literature.
10. To enriches mother language among the students.

PUNJABI LITERATURE:-

1. The students know the forms of literature.
2. The students get the knowledge of literary values.
3. The students can analyse/ criticize literature.
4. The students know well how to study language and literature.
5. After the completion of the course the students are ready to take up the special studies in language and literature.
6. The students acquaint with Punjabi language for further studies in Punjabi language and literature.
7. The programme connects the students to their roots.
8. Knowledge of Punjabi language helps them to think critically while studying Punjabi literature.

Govt. Shivalik college, Naya Nangal

Programme Outcomes

Course – B.Com

Punjabi Department

GENERAL PUNJABI:-

1. To develop a bonding with the mother tongue of the students.
2. The students gets to know and understand his/her native language in a far better way.
3. The students gains the knowledge and understanding of the various intricacies of the grammar and literature of Punjabi.
4. The students gains the knowledge and understanding of the rich folk culture and heritage of Punjabi.
5. The students know about vocabulary and basic grammar.
6. The students know how to study language and literature.
6. The students know the difference between prose and poetry as a form of literature.
7. To develops the skills of students in Punjabi.

PROGRAM OUTCOME for PG Diploma of Computer Applications

PO1: It will equip the students with skills required for designing, developing applications in Information Technology.

PO2: Students will be able to learn the latest trends in various subjects of computers & information technology.

PO3: The PG Diploma is aimed at graduates with a computing background and provides a detailed coverage of the key concepts and challenges in data and resource protection and computer software security.

PO4: To give hands on to students while developing real life IT application as part of the study.

PO5: To train graduate students in basic computer technology concepts and information technology applications. **PO6:** Design and develop applications to analyze and solve all computer science related problems.

Course Outcome of PGDCA(2022-23)

PDCA-1101T Introduction to Information Technology and E-Commerce :-

- Describes the computer and its general features
- Understand basic concepts and terminology of information technology
- Will be able to express basic computer hardware
- Distinguish computer types and basic concepts
- Know and use different number systems and the basics of programming.
- Have a basic understanding of personal computers and their operations
- Be able to identify issues related to information security.

PDCA-1102T Computer Programming Using C

- Develop a C program
- Control the sequence of the program and give logical outputs
- Implement strings in C program
- Store different data types in the same memory
- Manage I/O operations in your C program
- Repeat the sequence of instructions and points for a memory location
- Apply code reusability with functions and pointers

PDCA-1103T Windows Operating System & Office Automation

1. Students will learn how Operating System is Important for Computer System.
2. To make aware of different types of Operating System and their services.
3. To learn different process scheduling algorithms and synchronization techniques
4. To achieve better performance of a computer system.
5. Understands the different services provided by Operating System at different level. They learn real life applications of Operating System in every field.
6. Understands the use of different process scheduling algorithm and synchronization techniques to.

Course code : PGDCA-1104 L Programming lab 1

- to perform documentation
- to work nupon Ms-Excel Worksheets.
- to perform Powerpoint presentation skills

Course code : PGDCA-1105 L Programming lab 1

- Understanding a functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.

PGDCA-203 C++

- Describe OOPs concepts
- Use functions and pointers in your C++ program
- Understand tokens, expressions, and control structures
- Explain arrays and strings and create programs using them
- Describe and use constructors and destructors
- Understand and employ file management
- Demonstrate how to control errors with exception handling.

Course code: PGDCA-201 DBMS

Sem-II

- Understand the basic principles of database management systems.
- Draw Entity-Relationship diagrams to represent simple database application scenarios
- Discuss normalization techniques with simple examples.
- Describe transaction processing and concurrency control concepts.\
- creating relational database, analysis of table design.

PGDCA-202 Introduction to Computer Network, Internet & E-commerce

1 To provide students with an overview of the concepts and fundamentals of data communication and computer networks

2. To familiarize with the basic taxonomy and terminology of computer networking area.

3 To provide adequate knowledge and understanding about Internet, Web browsers, search engines, E-commerce Technology, Business models and Electronic payment System.

Course code: PGDCA- 204

DBMS Lab

- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.
- Understanding a defensive programming concept. Ability to handle possible errors during program execution

course Code: PGDCA-203 C++ Programming lab

Describe OOPs concepts

Use functions and pointers in your C++ program

Understand tokens, expressions, and control structures

Explain arrays and strings and create programs using them

Describe and use constructors and destructors

Understand and employ file management

COURSE OUTCOME
DEPARTMENT OF PHYSICAL EDUCATION,
GOVT SHIVALIK COLLEGE NAYA NANGAL
BA 1st Year 2022-2023
Program code :- ARTB03PUP

Sr. no.	Semester	Paper	Course code	Course outcome
1.	I.	Theory	ARTB1104T	After completion of this course, students will Apply knowledge of physical education, health education, Olympic games, Asian and common wealth games, growth and development, Heredity and environment, Personal Hygiene, Terminology of Physical Education, Cell, Digestive System,
		Practical	ARTB1105P	Having successfully completed this course student will learn about Athletic, Football and Volleyball.
2.	II.	Theory	ARTB1204T	Having successfully completed this course student will learn about Children and Sports, Body Types, Communicable Diseases, Sports Terminologies, Skeletal System, Joints, N.S.N.I.S., S.A.I, I.O.A, I.A.A.F, Drugs, Doping, Warming Up and Cool Down,
		Practical	ARTB1205P	Having successfully completed this course student will learn about Long Jump, Hockey and Basketball and Different Sports Awards.

COURSE OUTCOME
DEPARTMENT OF PHYSICAL EDUCATION,
GOVT SHIVALIK COLLEGE NAYA NANGAL
BA 2nd Year 2022-2023
Program code :- ARTB03PUP

Course Outcomes, **Program:** B. A. Physical Education

	Semester	Paper	Course code	Course outcome
1.	iii.	Theory	ARTB2304T	Having successfully completed this course student will learn about Children and Sports, Body Types, Communicable Diseases, Sports Terminologies, Skeletal System, Joints, N.S.N.I.S., S.A.I, I.O.A, I.A.A.F, Drugs, Doping, Warming Up and Cool Down,
		Practical	ARTB2305P	Having successfully completed this course student will learn about Long Jump, Hockey and Basketball and Different Sports Awards.
2.	iv.	Theory	ARTB2404T	Completion of this course will enable the students to: Play, Childhood and Adolescence, Age and Sex Differences, Yoga, Pranayama, Shudhi Kriyas, Physiology of Asanas, Endocrine System, Excretory System,
		Practical	ARTB2405P	Having successfully completed this course student will learn about Asanas, Kabaddi (National Style) and Shot Put.

PROGRAM OUTCOMES

Program outcomes of Physical education is not only concerned with the physical outcome that increase from participation in physical activities but also the development of knowledge and attitude conducive to lifelong learning and participation in active lifestyle. The curriculum and syllabus have been structured in such a way that each of the semester meets one or more of the outcomes related to the health, skills, knowledge, behaviours,

games and sports, that students acquire as they advance through the program. The main aims of Physical Education are given below.

1. To understand the importance of physical education by studying the ancient and modern history of Physical education.
2. To help the students to know more about Exercise Physiology and Human Biomechanics which helps for achieve higher level of sports performance and adopt sports training method.
3. To know about health aspects and maintain good health and fitness for higher achievements in sports.
4. To Maintenance of fitness level for optimal health and well-being.
5. To Enhancement of motor skills.
6. To equip the students with the knowledge domain of body response to different types of exercises.
7. to create the positive environment related to Sports and Exercise.
8. To understand the values and ethics of life and personality development.

CARRIER OPPORTUNITIES

There are various career opportunities in sports academy, health clubs, sports goods manufacturing companies, and in the areas of marketing. Also, there are opportunities as a commentator, sports journalist, sports trainer, school/college teacher (physical training), and many more like.

PE Teacher

Assistant Professor

Sports Manager

Physical Therapist

Physical Education Trainer

Health Educator

Professional sportsperson

Sports coach/consultant

Sports policy at local and national level

Diet and fitness instructor

Yoga Teacher

Fitness Instructor

Sports Journalist

GOVT. SHIVALIK COLLEGE NAYA NANGAL
Government shivalik college , naya nangal

Department of sociology

PROGRAMME OUTCOME 2022-23

SUBJECT CODE: ARTB03PUP

PROGRAM OUTCOME: Sociology learning provides initial knowledge about society, social life and social interactions. It prepares an individual to social life by inculcating values, morals, and manners. It gives knowledge about communities in which he interacts like rural and urban communities.

PROGRAMME SPECIFIC OUTCOMES:

Sociology seeks to understand all aspects of human social behavior, including the behavior of individuals as well as the social dynamics of small groups, large organizations, communities, institutions, and entire societies. Sociologists are typically motivated both by the desire to better understand the principles of social life and by the conviction that understanding these principles may aid in the formulation of enlightened and effective social policy. Sociology provides an intellectual background for students considering careers in the professions or business. A general Arts Graduate and Honors student of Sociology should be able to develop.

Critical Thinking: The programme seeks to develop in students the sociological knowledge and skills that will enable them to think critically and imaginatively about society and social issues.

Sociological Understanding: The ability to demonstrate sociological understandings of phenomena, for example, how individual biographies are shaped by social structures, social institutions, cultural practices, and multiple axes of difference and inequality.

Written and Oral Communication: The ability to formulate effective and convincing written and oral arguments. Develop communication skills and Social interaction power.

Better understanding of real life situation: The ability to apply sociological concepts and theories to the real world and ultimately their everyday lives.

Analytical thinking: Analytical thinking is developed with qualitative and quantitative analytical skills are enhanced.

Observation power: a sensible observation power is necessary to identify the research problems in field study. So a perception about human society slowly grows up.

Ethical and Social Responsibility: Students have to learn about institutions, folkways, mores, culture, social control, social inequality, population composition, population policy, society and culture of India. All these help to communicate among the students of sociology a sense of ethical and social responsibility.

Professional and Career Opportunities: Students will have the opportunity to join professional careers in Sociology and allied fields. Sociology provides an intellectual background for students considering careers in business, social services, public policy, government service, nongovernmental organizations (NGOs), foundations, or academia. This programme lays foundation for further study in Sociology, Social work, Women Studies, Rural Development, Social Welfare and in other allied subjects.

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GOVERNMENT SHIVALIK COLLEGE, NAYA NANGAL

DEPARTMENT OF SOCIOLOGY

COURSE OBJECTIVES AND OUTCOME 2022-23

SUBJECT CODE: ARTB03PUP

SEMESTER - I		
PAPER	OBJECTIVES	OUTCOMES
FUNDAMENTALS OF SOCIOLOGY I ARTB1107T	After studying the paper, the student can get to know the convergence and divergence of Sociology with other social sciences, disciplines in terms of the subject matter, nature and scope of the discipline and its approach. Develop knowledge about its historicity. Can get acquainted with the basic concepts used in the subject. Course will provide basic understanding of the social structure of Society, the process culture socialization, culture civilization.	The course is intended to introduce the students to a sociological way of thinking. It is the discipline of Sociology and provides an understanding of the discipline's sociological perspective. It also provides foundation for other more detailed and specialized courses in sociology. Students understood discipline and basic concepts in sociology, process and factors of socialization and social structure.

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SEMESTER - II		
FUNDAMENTALS OF SOCIOLOGY II ARTB1207T	Can generate ideas about the social the processes and social institutions. Man encounters as a member of the society. To familiarize students with the different social processes. To provide basic understanding of social groups of Society. To make them understand about various social institutions, religion, social control and to introduce them to the concept of social deviance.	Sociology seeks to understand all aspects of human social life the social dynamics of small groups, large organizations, communities, Institutions, and entire societies. Students understood the discipline, social processes institutions, religion, social control and social deviance in sociology.

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<p>Semester III</p> <p>SOCIAL STRUCTURE OF INDIAN SOCIETY</p> <p>ARTB1307T</p>	<p>Get an impression about the basic composition of Indian society, its historical moorings. Basic philosophical foundations of the society and the institutions. Learn about the changing institutions, the processes. the agents and the interventions that bring about change in the Indian society. To familiarize the student to the stratification in India, its theories. To enable them to acquire sociological understanding of caste and class in India. To empower them to deal with the knowledge of gender and family in India. Gender discrimination and urban and rural organization in Indian society.</p>	<p>The aim of this course is to make the students learn about basic institutions of Indian society. Students learned more about other Basic Institutions of Indian Society like Religion, Hindu. Muslim, and Christian, caste class, and changing dimension. Explored substantive basic institutions of Indian society like Family, Kinship. Marriage - Hindu. Muslim, Christian and changing dimensions, stratification in society caste and class in India, Gender studies and rural urban structure in Indian social structure.</p>
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GOVT. SHIVALIK COLLEGE NAYA NANGAL

<p>Semester IV</p> <p>SOCIAL CHANGE IN INDIA</p> <p>ARTB1407T</p>	<p>To familiarize the students with the Social Change, like evolution progress, development and revolution. To make them understand the factors of social change, various processes of social change Sanskritization, westernization. secularization globalization and modernization. To understand the planned social changes like ICDS. MNREGA. swaranjayanti gram swarojgar yojana and Panchayati Raj Institution.</p>	<p>After the completion of the course students are able to understand Social Change and processes of social change. Students are familiarized with planned social changes like ICDS. MNREGA, swaranjayanti gram swarojgar yojana and Panchayati Raj Institution.</p>
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<p>SEMESTER V</p> <p>SOCIOLOGICAL THOUGHT</p> <p>ARTB1507T</p>	<p>This course provides an understanding of the different sociological thinkers and the students will be able to learn about Auguste Comte and his contributions in sociology. Herbert Spencer and his organic analogy, Karl Marx's materialistic Weber's social history. Max Weber's concept of social action, ideal types and the concept of authority. Emile Durkheim's social facts. division of labour, and suicide. Mahatma Gandhi's concept of non-violence, satyagrah, swaraj and sarvodya.</p>	<p>Understood the founding father of sociology like Auguste Comte and his different contributions on thoughts like law of three stages, social statics, social dynamics, Cybernetic hierarchy of sciences, positivism. Herbert Spencer made different contributions on sociological thought like biological analogy. Evolutionism, social types, simple and compound, militant and industrial. Non intervention and survival of the fittest. Karl Marx contributions, superstructure, historical materialism, class . Conflict, alienation Learned about Emile Durkheim different thoughts on sociology like social facts, division of labor, suicide. Max Weber's social action, ideal types. Power and authority for the development of sociology as an independent science.</p>
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GOVT. SHIVALIK COLLEGE NAYA NANGAL

SEMESTER VI SOCIAL SCIENCE RESEARCH METHODS. ARTB1607T	<p>The course aims to provide knowledge on sociological research and students will be able to understand meaning. Objectives and steps in social research, processes. Students will demonstrate knowledge of scientific method, its definition and characteristics. Hypothesis, techniques of data collection, sampling, and analysis of data. To make them understand about. Uses of statistics, and measures of central tendency.</p>	<p>After the completion of the course students are able to understand meaning, scope, types and significance of Social Research, its scientific methods and the research processes. Understand conceptualization and formulation of hypothesis, role of theory and fact, problems in formulation of hypothesis, type and characteristics of hypothesis, testing of hypothesis. Learnt the importance of research design in Social Research and how to formulate in Know how to collect, analyze data , presentation and interpretation of data also enable to write a qualitative and quantitative field report writing with different statistical analysis , classification and tabulation of data.</p>
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GOVT. SHIVALIK COLLEGE NAYA NANGAL

Govt. Shivalik College Naya Nangal

Department Of Computer Science

Sr.No	Course Name & Course Code	Outcomes
I.	BA & B.SC– I (First Semester) 1. FUNDAMENTALS OF I.T (ARTB1112T) 2.PRACTICAL (ARTB1113P)	Upon the completion of the course the learner will be able to: CO-1: Familiarization with the types of computer, peripheral devices, memory management, multimedia and number system. CO-2: Learn about working of various input and output devices. CO-3: Learnt about binary number representation along with its operations. CO-4: Understand theoretical framework of internet and associated application of the internet. CO-5: Acquire the knowledge about the binary number representation along with its operations. CO-6: Understand of the role of computers in business, education and society.
2	BA & B.SC – I (Second Semester) 1.MS-OFFICE AUTOMATION TOOLS(ARTB1212T) 2.PRACTICAL (ARTB1213P)	After completion of this course, students will be able to: CO-1: Have basic knowledge of computer Hardware and Software. CO-2: Understand business areas to which computers may be applied. CO-3: Installation of Operating System (Windows), application

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		<p>software and to use Windows OS.</p> <p>CO-4: Provide practical knowledge to Office tools (MS Word, Excel and Power Point).</p> <p>CO-5: Use of MS-Word to type documents with various formatting.</p> <p>CO-6: Creating and manipulating Datasheets for different applications.</p> <p>CO-7: Designing effective presentations using Power Point software</p>
3.	<p>BA & B.SC – II (Third Semester)</p> <p>1.C PROGRAMMING AND DATA STRUCTURES(ARTB2312T)</p> <p>2. PRACTICAL (ARTB2313P)</p>	<p>After completion of this course, students will be able to:</p> <p>CO-1: Understand of various concepts of programming language.</p> <p>CO-2: Develop logics and analytical ability solve problem.</p> <p>CO-3: Learn about procedural programming using functions.</p> <p>CO-4: Acquired various flow control statements.</p> <p>CO-5: Learn about various storage classes along with user defined data types.</p> <p>CO-6: Acquire knowledge of file handling</p> <p>CO-7: Work with arrays of complex structure data types.</p>
4.	<p>BA & B.SC – II (Fourth Semester)</p> <p>1.DATABASE MANAGEMENT SYSTEM(ARTB2412T)</p> <p>2.PRACTICAL (ARTB2413P)</p>	<p>Upon the completion of the course the learner will be able to</p> <p>CO-1: Familiarization with various features and applications of Database Management system.</p> <p>CO-2: Acquire knowledge about database languages (DDL, DML, DCL)</p> <p>CO-3: Learn how to design a database by using different data</p>

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		<p>models.</p> <p>CO-4: Understand the database handling during execution of the transactions along with concurrent access.</p>
5.	<p>BA & B.SC – II (Fifth Semester)</p> <p>1.OBJECT ORIENTED PROGRAMMING USING C++ (ARTB3512T)</p> <p>2.PRACTICAL (ARTB3513P)</p>	<p>After completion of this course, students will be able to:</p> <p>CO-1: Understand the intricacies of Object Oriented Programming including the features and peculiarities of the C++ programming language.</p> <p>CO-2: Illustrate the concept of Inheritance, operator overloading, and polymorphism.</p> <p>CO-3: Implement various objects oriented concepts to solve practical problems.</p>
6.	<p>BA & B.SC – II (Sixth Semester)</p> <p>1.Introduction to Computer Network and Internet Programming (ARTB3612T)</p> <p>2. PRACTICAL (ARTB3613P)</p>	<p>After completion of this course, students will be able to:</p> <p>CO-1: Write and debug webpage using HTML.</p> <p>CO-2: Knowledge and Use of web publishing and phases related with the website development.</p> <p>CO-3: Make use of knowledge related to links, addresses, images, and tables.</p> <p>CO-4: Knowledge of various formatting options on HTML page and web site.</p> <p>CO-5: Knowledge of Server Side programming.</p>

GOVT. SHIVALIK COLLEGE NAYA NANGAL

PROGRAMME OUTCOME

B.Sc. (Non-Medical/ Computer Science):

Bachelor of Science (B.Sc.) is one of the most popular academic degree courses among the science students after class 12th. The duration of B.Sc. degree course is 3 years. B.Sc (Non – Medical) comprises of three elective subjects Physics, Chemistry and Mathematics. The students who are interested in the computer and information technology field can opt for B.Sc. (Computer Science) in which Computer Science is an elective subject in place of Chemistry.

Career opportunities after B.Sc (Non Medical/Comp. Sc)

There are various opportunities available for the students after B.Sc. The students can go in a research field, in some colleges the students can be recruited directly by the big organizations at a very good salary package, some professional B.Sc. (Computer Science) open the door of animation and IT industry for the graduates. A graduation degree in science allows the students to learn, work and get jobs not only in India but also in abroad. Apart from the research jobs, students can also work or get jobs in Marketing, Business & Other technical fields. Science graduates also recruited in the bank sector to work as customer service executives. Students can also find employment in government sectors. Few of the options are available after pursuing post-graduation (M. Sc.). Students can also pursue Ph.D. from reputed institute after MSc and get fellowships/scholarships. Some of the recruiting agencies are BHEL, DRDO, HPL, CSIO etc

B.A Computer Science Program Specific Outcomes

- To expose the students to the basic concepts of Information Technology.
- To equip the students with practical knowledge and give hand on experience to them
- To equip students with the study of design, development and analysis of software used to solve problems.
- To make students aware the importance of open source softwares and its usage.

Career Opportunities after B.A in Computer Science

Higher studies in computer science will help the candidates in acquiring better jobs in public as well as private sector organisations. Many reputed public and private sector organisations recruit graduates in B.A in computer science. They can even find suitable jobs in many well-known organisations abroad. The major job profiles after B.A in computer science is as follows.

- Lecturer-Computer Science
- Assistant Professor-Computer Science
- Teacher-Computer Science
- Back Office Executive-Computer Science
- Vocational Instructor-Computer Science
- Computer Operator
- Computer Programmer Operator
- Data Entry Operator
- Technical Assistant-Computer

GOVT. SHIVALIK COLLEGE NAYA NANGAL
Department of Mathematics Session (2023-24) Programme

CODE :-

Programme OUTCOME :-

COURSE :- B. Sc. MATHEMATICS

Mathematical Knowledge

Familiarize the students with suitable tools of mathematical analysis to handle issues and problems in mathematics and related sciences. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology.

Problem Solving Skills

This programme also offers training in problem solving skills.

Analytical & Logical thinking:-

Students should be able to apply their skills and knowledge that is translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

Department of Mathematics

COURSE OUTCOME

COURSE SPECIFIC OUTCOME

B.Sc. ^{1st} Semester

S. No.	Course /Code	Outcome Semester I
1.	CACULUS (SCIB1101T)	<ul style="list-style-type: none">• To apply notion of derivative in mean value theorem and also in higher order derivatives which arise in all applied sciences.• To study functions in detail which is a fundamental structure in all sciences, and to be able to check continuity of a function
2	LINEAR ALGEBRA and TRIGNOMETRY (SCIB1103T)	<ul style="list-style-type: none">• To learn to find Eigen values and Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.• Understand the concept of vector spaces ,sub spaces, bases, dimension and their properties .

B.Sc. ^{2nd} Semester

S. No.	Course /Code	Outcome Semester II
1.	Co-ordinate geometry (SCIB1201T)	<ul style="list-style-type: none">• Relate matrices and linear transformation; compute Eigen values and Eigen vectors of linear transformation.• To learn analytical geometry of 2 and 3 dimensions which include study of conics, planes, lines, sphere, cone and cylinder
2.	DIFFERENTIAL EQUATIONS (SCIB1202T)	<ul style="list-style-type: none">• Power series solution method using ordinary and singular points.• To understand the concept of Ordinary differential Equations in more than two variables.• Learn methods to solve first order Partial Differential Equations.

Department of Mathematics

GOVT. SHIVALIK COLLEGE NAYA NANGAL
 Department of Mathematics
COURSE OUTCOME

B.Sc. 3rd Semester

S. No.	Course /Code	Outcome Semester III
1.	ANALYSIS I (SCIB2301T)	<ul style="list-style-type: none"> To study concept of sequence and series and hence find sum of infinite terms with different methods. To study notion of lub and glb which helps to learn integrations which helps to find area under any functions
2.	NUMERICAL METHODS (SCIB2302T)	<ul style="list-style-type: none"> Students can find divided difference ,forward , backward formula . Students study various methods on bisection , regula falsi ,secant methods
3.	MECHANIC S (SCIB2303T)	<ul style="list-style-type: none"> Statics: friction, work and energy, virtual work, Dynamics: conservation of linear momentum, angular momentum and energy, variable mass systems, dynamic equilibrium.

B.Sc. 4th Semester

S. No.	Course / Code	Outcome Semester IV
1.	ANALYSIS II (SCIB2401T)	<ul style="list-style-type: none"> To learn Riemann Integral and its properties in detail, leading to fundamental theorem of calculus and Mean value theorems. To study pointwise and uniform convergence of sequences and series of functions.
2.	LINEAR PROGRAMMING (SCIB2402T)	<ul style="list-style-type: none"> Understand the theory of the simplex method. And know about the relationships between the primal and dual problems, and to understand sensitivity analysis. Learn about the applications to transportation, assignment and two-person zero-sum game problems.
3.	DYNAMICS (SCIB2403T)	<ul style="list-style-type: none"> Understand the kinds of motion, absolute and relative velocities and accelerations. Learn about concurrent forces ,Lami's theorem ,centre of gravity.

Department of Mathematics

GOVT. SHIVALIK COLLEGE NAYA NANGAL
 Department of Mathematics
COURSE OUTCOME

B.Sc. 5th Semester

S. No.	Course /Code	Outcome Semester V
1.	MATHEMATICAL METHODS I (SCIB3501T)	<ul style="list-style-type: none"> To learn to evaluate the Fourier series of various even and odd functions. To learn the evaluation of Laplace transform of different types of functions, their derivatives and integrations
2.	ALGEBRA I (SCIB3502T)	<ul style="list-style-type: none"> Understand the basic concepts of group actions and their applications. Recognize and use the Sylow theorems to characterize certain finite groups. Know the fundamental concepts in ring theory such as the concepts of ideals, quotient rings, integral domains, and fields
3.	DISCRETE I (SCIB3503T)	<ul style="list-style-type: none"> Learn about partially ordered sets, lattices and their types. Understand Boolean algebra and Boolean functions, logic gates, switching circuits and their applications

B.Sc. 6th Semester

S. No.	Course /Code	Outcome Semester VI
1.	MATHEMATICAL METHODS II (SCIB3601T)	<ul style="list-style-type: none"> To learn the evaluation of Inverse Laplace transform of functions, their derivatives and integrations, and to learn application of Convolution theorem. To learn to apply Laplace Transform to solve Ordinary Differential equations with constant coefficients.
2.	ALGEBRA II (SCIB3602T)	<ul style="list-style-type: none"> Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.
3.	DISCRETE II (SCIB3603T)	<ul style="list-style-type: none"> Solve real-life problems using finite-state and Turing machines. Assimilate various graph theoretic concepts and familiarize with their applications.

Department of Mathematics

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -1 (semester I)

SR NO	Course code	PAPER	COURSE OBJECTIVES	COURSE OUTCOME
1	SCIB1117T	DIVERSITY OF MICROBES	This course aims to increase the understanding of the students about the diversity of lower plants, their classification, structure and growth.	The students will develop understanding about the diversity, identification, classification, life cycles and economic importance of lower plants.
2	SCIB1118T	DIVERSITY CRYPTOGAMS	The course focuses on morphology, anatomy, reproduction and life cycles and economic importance and bryophytes and pteriodophytes.	The students develop the basic understanding of important characteristics, anatomy, reproduction and along with economic importance of these groups
3	SCIB1119L	LAB	Gram staining of bacteria Study of bacterial disease w.r.t. Causal organisms and symptoms Study of viral disease w.r.t. Cause organisms and symptoms Study of algae, fungi, bryophytes and pteriodophyte	The students will develop understanding about the diversity, identification, classification, life cycles and economic and importance of lower plants.

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -1 (semester II)

SR NO	Course code	PAPER	COURSE OBJECTIVES	COURSE OUTCOME
1	SCIB1217T	CELL BIOLOGY	The objective of the present course content is to provide a foundation and background in cellular entities of plants, cell structure and its organelles in relation to functions, Chromosome organization, morphology, alteration	About the cellular entities including infective particles comprised the observations which challenge the established dogmas, such as, cell being the basic unit of life or higher plants are multicellular rather than cellular, and current state of knowledge about the plant cell structure and their turn over, starting from cell wall to chromatin, in relation to their functions. Students will understand the role of plasma membrane in microbes and plants Student will focus on various components of the eukaryotic nuclear and organelle genome, with special reference to plastids and mitochondria
2	SCIB1218T	GENETICS AND EVOLUTION	The paper deals with Mendelian and non-Mendelian inheritance, quantitative genetics, molecular markers and linkage mapping, prokaryotic and eukaryotic genome-structure, gene function and regulation, cytogenetic and crop evolution.	They understand the pattern of inheritance in various life forms. They develop a strong fundamentals basics for further molecular studies
3	SCIB1219L	Lab	To gain knowledge about 'cell science' Understand the cell organelles Understand the biochemical nature of nucleic acids, experimental evidence to prove DNA as a genetic material	Learn the scope and importance and their role in living system cell and biology and genetics

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -1I (semester III)

SR. NO	COURSE CODE	PAPER NAME	COURSE OBJECTIVES	COURSE OUTCOME
1	SCIB2318	DIVERSITY AND SYSTEMATIC OF GYMNOSPERMS	<ul style="list-style-type: none">This course aims to add to understanding of the students about the diversity of plants, their Description, Identification, Nomenclature and their classification including recent advances in the field	<ul style="list-style-type: none">The students will know about the systematic position of Genera, Species and Families.The students develop knowledge about plant nomenclature
2	SCIB2319	DIVERSITY AND SYSTEMATIC OF ANGIOSPERMS	<ul style="list-style-type: none">This course aims to add to understanding of the students about the diversity of plants, their Description, Identification, Nomenclature and their classification including recent advances in the field.	<ul style="list-style-type: none">The students will know about the systematic position of Genera, Species and Families.The students develop knowledge about plant nomenclature
3	SCIB2320	Lab	<ul style="list-style-type: none">Microscopic and charts/slides Study of T.S and L.S shoot root leaf and reproductive structures of Gymnosperms and Angiosperms	<ul style="list-style-type: none">Understand the status of plant kingdomUnderstand the families emphasizing their morphology, their technical description

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -II (semester IV)

SR. NO	COURSE CFODE	PAPER NAME	COURSE OBJECTIVES	COURSE OUTCOME
1	SCIB2418	PLANT ANATOMY	<ul style="list-style-type: none"> The paper contains tissue system, growth and secondary and anomalous secondary growth 	They will be understand the internal organization of plants and comes to know about their modifications and their role in different function
2	SCIB2419	DEVELOPMENT AND REPRODUCTION FLOWERING PLANTS	The paper contains structure and function of reproductive organs and their significance in plant reproduction. Pollination, Fertilization, Embryogenesis,	<p>Students will able to differer</p> <p>Reproductive organs at</p> <p>Morphological,</p> <p>Anatomical level</p> <p>This knowledge will be help</p> <p>Apply in Agriculture,</p> <p>Floriculture and Horticu</p> <p>production of</p> <p>hybrids</p>
3	SCIB2420	Lab	<p>Microscopic study of dicot and monocot root, Shoot, leaves from locally available material</p> <p>Study of pollen viability</p> <p>Microscopic study of anomalous secondary growth To study vegetative propagation</p>	<ul style="list-style-type: none"> They will be understand the internal organization of plants and comes to know about their modifications and their role in different function

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -III (Semester V)

SR NO	COURSE CODE	PAPER NAME	COURSE OBJECTIVES	COURSE OUTCOME
1	SCIB3517	PLANT PHYSIOLOGY	<p>Mechanism and physiology life processes in plants.</p> <p>It focuses on the plant nutrient uptake and translocation, photosynthesis, respiration and fat and nitrogen metabolism.</p>	<p>Students will be able to understand the various physiological life processes in plants</p> <p>They will also gain about the various uptake and transport mechanisms in plants and are able to coordinate the various processes.</p> <p>They understand the role of various hormones, signaling compounds, thermodynamics and enzyme kinetics.</p> <p>During the course students will gain knowledge about various mechanisms such as channel or transport proteins involved in nutrient uptake in plants.</p>
	22222 SCIB3518 2	PLANT GROWTH, DEVELOPMENT AND BIOTECHNOLOGY	<p>This course would provide students with an understanding of principles and techniques of plant tissue culture, concepts and methods associated with development and analysis and to provide a contextual and inquiry based learning of modern day advances in the field of recombinant DNA technology</p>	<p>Concepts, tools and techniques related to in vitro propagation of plants.</p> <p>Different methods used for genetic transformation of plants, use of Agro bacterium as a vector for plant transformation, components of a</p> <p>Various case studies related to basic and applied research in plant Sciences using transgenic technology.</p> <p>Principles and methods used for phenotypic, genetic and</p>

				molecular analysis of transgenic plants
3	4SCIB351 9	Lab	<p>Determine the DPD by using the potato tuber</p> <p>To determine the rate of photosynthesis</p> <p>of phototropism and geotropism and ascent of sap by eosin method</p> <p>Explanation</p> <p>Micro chemical tests of reducing sugars, fats and proteins in plant tissues</p> <p>Demonstration of necessity of light, CO₂ and chlorophyll for photosynthesis Demonstration of the technique of micro propagation</p>	It assist the students in understanding the physiological processes and learn about the biotechnology technique like recombinant DNA

GOVERNMENT SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF BOTANY

B.Sc (Botany) Part -III (Semester VI)

	PAPER	PAPER NAME	COURSE OBJECTIVE	COURSE OUTCOME
1	SCIB3617	PLANT ECOLOGY	<p>This course aims to introduce the concepts and principles of ecology, biological diversity, conservation, sustainable development, population, community and ecosystem structure and function, application of these concepts to solve environmental problems.</p> <p>Environmental and conservation strategies with sustainable management.</p>	<p>They will understand the factors leading to Environmental degradation, their reasons and their impact on the Environment.</p> <p>This knowledge can help to form strategies for conservation and sustainable management under the given legislative measures.</p>
2	SCIB3618	PLANT UTILITY	<p>This course aims to introduce the various types of plant products such as fibers, food, medicinal, beverages and narcotics, their cultivation practices and uses</p>	<p>They understand the pattern origin, diversification and cultivation of plants in nature.</p> <p>They are able to design the strategies for conservation of these natural resources</p>
3	SCIB3619	Lab	<p>Plot of quadrats to study of grasslands Estimation of bulk Density, porosity, moisture content and water holding capacity Estimation of pH, temperature, DO in water Study of cotton flower, Section cutting of mustard ground nut, Micro chemical test Field visit to study timber yielding, bamboos, medicinal plants</p>	<p>Understand the pattern of origin, diversification and cultivation of plants in nature</p> <p>Able to design the strategies for conservation of these natural resources</p>

Department Of Chemistry

Sr.No	Course Name & Course Code	Outcomes
1.	B.SC– I (First Semester) Inorganic chemistry(SCIB1208T)	<p>Upon the completion of the course the learner will be able to:</p> <p>CO-1: To understand the atomic structure of an atom and various shapes of <i>s,p,d</i> orbital's .</p> <p>CO-2:To understand the position of elements in the periodic tables, application and chemical behaviour.</p> <p>CO-3:To study the .chemical properties of noble gases structure and bonding in xenon compounds.</p> <p>CO-4: Understand chemical bonding shapes inorganic molecules and ions ,VSEPR theory, BT theory & its limitation, various types of hybridization.</p>
2	B.SC – I (First Semester) 1.Organic chemistry(SCIB1209T)	<p>After completion of this course, students will be able to:</p> <p>CO-1:Understandstructure and chemical bonds Vander waals interaction inductive effect and hydrogen bonding ..</p> <p>CO-2:To understand mechanism of varous organic reactions ,reactive intermediates–carbocation,carbanionfree radicals.</p> <p>CO-3: To understand alkanes and cycloalkanes ,Isomerism ,method of formation, physical and chemical properties, and various mechanisms involve them.</p> <p>CO-4: To study the nomenclature of alkenes ,preparation ,mechanism, chemical reactions.</p> <p>CO-5To study Cycloalkanes, dienes and alkynes.</p>

3.	B.SC – I (FIRST Semester) Physical chemistry(SCIB1210T)	After completion of this course, students will be able to: CO-1: Understand the various mathematical concept linear graphs calculation of slops factorial,probability. CO-2:Evaluation of analytical data least square curve fitting ,confidence limit. CO-3:To Understand intermolecular forces and structure in liquid state& liquid crystals.. CO-4:To understand the gases states ,physical properties and their molecular structure..
4.	B.SC – I (First Semester) Chemistry Practical(SCIB1211L)	Upon the completion of the course the learner will be able to CO-1:To understand semi –micro analysis cation & anions analysis,sepration and identification of ions from groups I,II,III,IV,V & VI.
5.	B.SC – I (Second Semester) 1.Inorganic Chemistry(SCIB2308)	After completion of this course, students will be able to: CO-1: To understand S& P blocks elements ,comparative study, diagonal relationships ,silent features, basic properties of halogens ,interhalogens and polyamides. CO-2:Study about ionic solids their structures ,lattice defects ,polarisabilityof ions valance bond theory, weak interactions-hydrogen bonding, Vander waals forces . CO-3: Implement various objects oriented concepts to solve practical problems.
6.	B.SC – I (Second Semester) organic Chemistry (SCIB2309)	After completion of this course, students will be able to: CO-1:To study the stereochemistry of various organic compounds and difference between configuration and conformation. CO-2 understand arenas and aromaticity,nomenclature structure ,stability, carbon-carbon bond length of benzene, Huckels rule, aromatic ions , method , formation and chemical reaction of alkyl benzenes, biphenyl. CO-3: study of alkyl and aryl halides their nomenclature preparation chemical reactions and mechanisms.

7	B.SC – I (Second Semester) Physical Chemistry (SCIB2310)	After completion of this course, students will be able to: CO-1: To understand solution ,dilutesolution,and colligative properties of solution. CO-2: To understand the colloidal states classification preprationproperties ,inhibition ,general application of colloids. CO-3: to study chemical kinetics and its scope collision theory, equilibrium constant and thermodynamic aspects ,catalysis and general characteristics of catalytic reactions and its mechanism
8	B.SC – I (Second Semester) Chemistry Practical(SCIB2311)	After completion of this course, students will be able to: CO-1: To determine the melting point and boiling point of various substances like benaphthalene,asprin,ethanol,toluene and benzene. CO-2: To study crystallization eg.phthalic acid from hot water, naphthalene from ethanol, benzoic acid from water. CO-3:To study the hydrolysis of an ester, viscosity and surface tension of pure liquids. CO-4: To study the molecular weight by Rast method.

9	B.SC– II (Third Semester) Inorganic chemistry(SCIB2408)	To understand chemistry of Transition and Lanthanide elements. To understand chemistry of actinide elements.
10	B.SC– II (Third Semester) organic chemistry(SCIB2109)	To understand the methods of formation and chemical properties of alcohols, glycerol's. 2. To discuss the acidic strength of alcohols and phenols. 3. Able to understand the Gatterman synthesis, HaubenHostch and Reimer-Tiemann reactions. 4. To understand the concept of acetals as protecting groups. 5. To understand the concept and importance of α,β -unsaturated aldehydes and ketones

11	B.SC– II (Third Semester) Physical chemistry(SCIB2410)	<p>.To study the concepts of enthalpy, entropy and second law of thermodynamic.</p> <ol style="list-style-type: none"> 2. To describe the Carnot theorem and problems based on efficiency of Carnot cycle. 3. To understand the concept of entropy and its change in mixture of ideal gases. 4. To understand the third law of thermodynamics and natural phenomenon related to third law of thermodynamics. 5.To write the expressions for equilibrium constants.
12	B.SC– II (Third Semester) Practical chemistry(SCIB2411)	<p>Volumetric Analysis :</p> <ol style="list-style-type: none"> 1. Determination of acetic acid in a commercial vinegar using NaOH. 2. Determination of alkaline content in antacid tablet. 3. Estimation of hardness of water by EDTA. 4. Estimation of ferrous and ferric by dichromate method. 5. Estimation of copper using sodium thiosulphate. <p>Thin Layer Chromatography : Determination of R_F Value of different components.</p>
13	B.SC– 2 (Fourth Semester) inorganic chemistry(SCIB3508)	<ol style="list-style-type: none"> 1. To understand the chemistry of coordination compounds, Werner's theory, Nomenclature, VBT theory of transition metal complexes. <p>To understand redox potential data, redox stability, study of acids and bases as well as study of non- aqueous solvent such as liquid ammonia and liquid sulphur dioxide.</p>

14	B.SC– 2 (Fourth Semester) organic chemistry(SCIB3509)	<ol style="list-style-type: none"> 1. To study nomenclature, physical and chemical properties as well as effect of substituent's on acidity of carboxylic acids. 2. To study the properties and chemical reaction of unsaturated mono and di carboxylic acids. 3. To study the preparation, properties, nomenclature of carboxylic acid derivatives. 4. To study the nomenclature and properties of ether and peroxides. 5. To study the structure, properties, analysis of fats, oils and detergents. <p>To understand the organic compounds of nitrogen i.e. nitro and amine compounds</p>
15	B.SC– 2 (Fourth Semester) Physical chemistry(SCIB3510)	<ol style="list-style-type: none"> 1.To understand the concept of phase rule and degree of freedom. 2.Tostudythepropertiesofimmiscibleliquidsandpartialmiscibleliquids. 3. To understand Kohlrausch's lawandexplainits application. 4.Discuss the Arrhenius theory ofelectrolytedissociationofitslimitation. 5. To Explain the construction and working of glass electrode. 6.Toknowthesaltbridge. Explain its function.

16	B.SC– 2 (Fourth Semester) Practical chemistry(SCIB3511)	<p>Qualitative analysis :</p> <p>Detection of elements and functional groups in simple organic compounds.</p> <p>Physical Chemistry :</p> <p>1.To determine the solubility of benzoic acid at different temperature and determine enthalpy change of dissolution process.</p> <p>2.To determine enthalpy of neutralization of weak acid/weak base vs strong acid / strong base.</p> <p>3.To determine enthalpy of solution of solid calcium carbonate.</p>
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17	B.SC– 3 (Fifth Semester) Inorganic chemistry(SCIB3608)	<ol style="list-style-type: none"> 1. To understand Crystal field theory for coordination compounds and their electronic spectrum. 2. To understand thermodynamic and kinetic aspects of metal complexes <p>To understand the magnetic properties as well as electronic spectra of transition metal complexes.</p>
18	B.SC– 3 (Fifth Semester) organic chemistry(SCIB3609)	<ol style="list-style-type: none"> 1. Spectroscopy <ul style="list-style-type: none"> • NMR, UV, IR – Applications and their properties 2. To study the structure, properties and applications of organo metallic compounds as well as organo sulphur compounds.
19	B.SC– 3 (Fifth Semester) Physical chemistry(SCIB3610)	<ol style="list-style-type: none"> 1. To understand elementary quantum mechanics. 2. Spectroscopy <ul style="list-style-type: none"> • Rotational and vibrational of various diatomic molecules, selection rules, determination of bond length, qualitative description of non rigid rotator.

20	B.SC– 3 (Fifth Semester) Practical chemistry(SCIB36)11	1. Synthesis and Analysis of inorganic compounds e. g. Preparation of sodium trioxalato ferrate (III) , and determination of it's composition , Preparation of copper tetraamine complex, preparation of Nickel- DMG complex. Study and synthesis of Organic compounds
21	B.SC– 3 (Six Semester) Inorganic chemistry(SCIB1108T)	<ol style="list-style-type: none"> 1. Study of concepts of hard and soft acids and base 2. Study of Bio – Inorganic chemistry, nucleic acid, role of metal in biological systems 3. Silicones and phosphazenes 4. Organo metallic chemistry – Nomenclature , Classification, properties and applications., Study of nature of bonding in metal carbonyl.
22	B.SC– 3 (Six Semester) organic chemistry(SCIB1109T)	<ol style="list-style-type: none"> 1. To understand the chemistry of heterocyclic compounds like indole, quinoline, isoquinoline. 2. To study the preparation, properties and applications of synthetic polymers. 3. To study the organic synthesis via enolates. 4. Study of chemistry of carbohydrates with special reference to structure and configuration of glucose and fructose. Gain knowledge about amino acids, peptides and proteins
23	B.SC– 3 (Six Semester) Physical chemistry(SCIB1110T)	To understand Raman, electronic spectra, understand photochemistry and solid state

24	B.SC– 3 (Six Semester) Practical chemistry(SCIB3511L)	<ol style="list-style-type: none"> 1. Study of column chromatography as well as stereo chemical study of organic compounds via models. 2. To determine the strength of given acid, conductometry. 3. To determine the strength of given acid solution via pH metrically by using standard alkali solution. 4. To determine the molar refraction of given liquid I.e. methanol, ethanol and propanol by using Abbe's refract meter. 5. To study the distribution of iodine between water and ccl4. To study the distribution of benzoic acid between benzene and water
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PROGRAMME OUTCOME

A three year program which enables the students to appreciate the achievements in chemistry to know the role of chemistry in nature and in society. Candidates who have passed +2 science from any recognised institution. The student graduating with the degree B.Sc chemistry should be able to acquire.

Core Competency: students will acquire core competency in the subject. Chemistry ,and in allied subject areas.

- i) Systematic and coherent understanding of the fundamental concepts in physical chemistry, organic chemistry, inorganic chemistry, analytical chemistry and all other related allied chemistry subjects.
- ii) Students will be able to use the evidence based comparative chemistry approach to explain the chemical synthesis and analysis.
- iii) The student will be able to understand the characterization of materials.
- iv) Students will be able to understand the basic principle of equipments, instruments in the chemistry laboratory.
- v) Students will be able to demonstrate the experimental techniques and methods.
- vi) **Disciplinary knowledge and skill:** a graduate student is expected to capable of demonstrating comprehensive knowledge and understanding of both theoretical and experimental/applied chemistry knowledge in various fields of interest like Analytical chemistry, Physical chemistry, Inorganic chemistry, organic chemistry, Material chemistry, etc. Further the students will be capable of using of advanced instruments and related soft wares for in depth characterization of materials/chemical analysis and separation technology.
- vii) **Skilled communicator:** the course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral representation.

- viii) **Critical thinker and problem solver:** the course curriculum also includes components that can be helpful to graduate students to develop critical thinking ability by way of solving problems/numerical using basic chemistry knowledge and concepts .
- ix) **Sense of enquiry:** it is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions planning and reporting experimental investigation.
- x) **Team Player:** The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory ,field based situation and industry.
- xi) **Skilled project Manager:** The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about chemistry project management ,writing ,planning, study of ethical standards and rules and regulations pertaining to scientific project operation.
- xii) **Digitally literate:** The course curriculum has been designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools and use of chemical simulation software and related computational work .
- xiii) **Ethical awareness/reasoning:** A graduate students require to understand and develop ethical awareness/reasoning which the course curriculum adequately provide.
- xiv) **Lifelong learner:** The course curriculum is designed to inculcate a habit of learning .continuously through use of advanced ICT technique and other available techniques/books /journals for personal academic growth as well as for increasing employability opportunity.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF PHYSICS

PROGRAMME B.Sc. PHYSICS

PROGRAMME CODE – SCIB03PUP

PROGRAMME OUT COME:

Course: Physics

At the completion of B. Sc. in Physics, students are able to:

- Demonstrate a rigorous understanding of the core theories & principles of physics, which includes mechanics, electromagnetism, thermodynamics, & quantum mechanics introduced at degree level in order to understand nature at atomic levels.
- Provide knowledge about material properties and its application for developing technology to ease the problems related to the society.
- Understand the set of physical laws, describing the motion of bodies, under the influence of system of forces.
- Understand the relationship between particles & atom, as well as their creation & decay. Relate the structure of atoms & subatomic particles understand physical properties of molecule the chemical bonds between atom as well as molecular dynamics.
- Analyse the applications of mathematics to the problems in physics & develop suitable mathematical method for such application & for formulation of physical theories.

Programme Specific Outcomes

- Students get acquainted with techniques which are useful in industry.
- Students get conceptual knowledge of entrepreneurships through the co-curricular activities.
- Learn the organizational skills and working in group.
- Students will be well versed with use of computers.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF PHYSICS

PROGRAMME B.Sc. PHYSICS

PROGRAMME CODE - SCIB03PUP

COURSE SPECIFIC OUTCOME

B.Sc. ^{1st} Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Mechanics-I SCIB1104T	<ul style="list-style-type: none">➤ Application of Newton's laws of motion to solve various problems related to day today life.➤ To learn motion of bodies and to acquire basic knowledge of mechanics, properties of matter and gravitation.➤ Understand Collisions in one and two dimensions.➤ Derive Kepler's laws, Coriolis force and its expressions
2.	Vibration and waves-I SCIB1105T	<ul style="list-style-type: none">➤ Understand the concepts of mechanics, acoustics and the properties of matter.➤ Understand physical characteristics of SHM and obtaining solution of the oscillator using differential equations.➤ Calculate logarithmic decrement relaxation factor and quality factor of a harmonic oscillator.
3.	Electricity and magnetism-I SCIB1106T	<ul style="list-style-type: none">➤ Gain Knowledge on the basic concepts of electric and magnetic fields.➤ Understand the concept of conductors, dielectrics, inductance and capacitance.➤ Gain knowledge on the nature of magnetic materials.➤ Understand the concept of static and time varying fields.
4.	Practical SCIB1107L	<ul style="list-style-type: none">➤ Will be able to determine Poisson's ratio for rubber.➤ Understand the working of energy meter and differentiate between AC and DC currents.➤ Students establish relation between torque and angular acceleration using flywheel and also improve their calculation ability and graphical skill.➤ By performing the collision experiment students differentiate between 1-D and 2-D.

B.Sc. 2nd Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Mechanics-II SCIB1204T	<ul style="list-style-type: none">➤ Understand the relation between scattering cross section and impact parameter.➤ Understand the properties of materials.➤ Identify and apply the laws of mechanics along with the necessary mathematics for solving numerical.➤ Gain knowledge on Central forces – definition and examples, Conservative nature of central forces, Conservative force as a negative gradient of potential energy, Equation of motion under acentral force.
2.	Vibration and waves- II SCIB1205T	<ul style="list-style-type: none">➤ Use Lissajous figures to understand simple harmonic vibrations of same frequency and different frequencies.➤ Solve wave equation and understand significance of transverse waves.➤ Solve wave equation of a longitudinal vibration in bars free at one end and also fixed at both the ends.➤ Gain knowledge on applications of transverse and longitudinal waves.
3.	Electricity and magnetism-II SCIB1206T	<ul style="list-style-type: none">➤ Understand the basic mathematical concepts related to electromagnetic vector fields.➤ Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.➤ Apply the principles of magneto statics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.➤ Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.➤ Apply Maxwell's equations to solutions of problems relating to transmission lines and uniform plane wave propagation.
4.	Practical SCIB1207L	<ul style="list-style-type: none">➤ Students know about how to find acceleration due to gravity by different methods.➤ Students know about capacitance and also understand the use of capacitor in different equipments.➤ Students differentiate between logarithmic decrement, co-efficient of damping relaxation time and quality factor.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF PHYSICS

PROGRAMME B.Sc. PHYSICS

PROGRAMME CODE—SCIB03PUP

B.Sc. ^{3rd} Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Statistical Physics and Thermodynamics-I SCIB2304	<ul style="list-style-type: none">➤ Various thermodynamic laws gives the knowledge of Carnot cycle heat engine also explains the various thermodynamic scale of temperature and knowledge of entropy.➤ Maxwell's thermodynamic relations and their applications also explains about triple point, Joule-Thomson effect and about blackbody radiation.➤ Study about M.B, B.E, F.D Statistics and their comparison.➤ Students understand distribution of n-particle into compartments and cells.
2.	Optics SCIB2305	<ul style="list-style-type: none">➤ To develop and understanding of Principles of Optics.➤ Understand the basic concept of Physical Optics and Wave Optics.➤ To develop an ability to compute basic quantities in Optics.➤ Observe principles of optics in daily life
3.	Quantum Mechanics-I SCIB2306	<ul style="list-style-type: none">➤ Understand the intuitive ideas of the Quantum physics and Nuclear physics.➤ Derive Schrodinger time dependent and time independent wave equations.➤ To understand dual nature of matter.➤ Gain knowledge on classification of various crystal systems.
4.	Practical SCIB2307	<ul style="list-style-type: none">➤ Understand the concept of probability.➤ Student know that how to use spectrometer to find resolving power and refractive index.➤ Learn to find plank's constant value.➤ Students will also learn how to use measuring instruments and minimize errors, compare results with standard results

B.Sc. 4th Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Statistical Physics and Thermodynamics-II SCIB2404	<ul style="list-style-type: none">➤ Students study thermodynamic potentials, enthalpy, Helmholtz free energy, Gibb's free energy and phase transitions relating to physical systems.➤ Students study Maxwell relations and its applications, adiabatic demagnetization and low temperature physics.➤ Students study Maxwell's law of distribution of velocities, mean free path, transport phenomena and learn to solve the problems.➤ Students study real gasses and behavior of real gases, Vander Waal's equation of state, Low temperature physics and its related applications.
2.	Lasers SCIB2405	<ul style="list-style-type: none">➤ In This course the students would gain the knowledge basic principles.➤ Studied the various types of lasers, Laser spectroscopy and their applications in science and technology.➤ To know theory of laser, its basic properties.➤ To learn about resonators, transient effect, many laser systems and practical use of laser.
3.	Quantum Mechanics-II SCIB2406	<ul style="list-style-type: none">➤ To know generalized angular momenta, Electron's magnetic moment, Energy of a magnetic dipole, Stern-Gerlach experiment.➤ To study Fine structure of hydrogen atoms, atoms in presence of electric and magnetic fields- application of Quantum mechanics for atomic systems.➤ To learn Many electron atoms, identical particles, Pauli principle.
4.	Practical SCIB2407	<ul style="list-style-type: none">➤ Understand how to measure height of an building, mountain by new apparatus sextant.➤ Know about variation of wavelength with frequency.➤ Difference between galvanometer and voltmeter.➤ Develop a basis for future learning and work experience.

GOVT. SHIVALIK COLLEGE NAYA NANGAL

DEPARTMENT OF PHYSICS

PROGRAMME B.Sc. PHYSICS

PROGRAMME CODE - SCIB03PUP

B.Sc. 5th Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Condensed Matter Physics-I SCIB3504	<ul style="list-style-type: none">➤ To learn crystal structure, lattice dynamics.➤ To understand quantum properties of matter like magnetic property, dielectric property.➤ To understand elementary band theory.➤ Superconductivity – one of major breakthrough in modern science.➤ Studied about SC, BCC, FCC and Reciprocal lattice.
2.	Electronics-I SCIB3505	<ul style="list-style-type: none">➤ Knowledge about semiconductors since it is a basic materials used in many electronic components like diode, transistors FET, JFET, MOSFET etc.➤ Characteristics and working of operational amplifiers which are useful in various medical and scientific investigations to amplify the signals.➤ Generation of high frequency signals using oscillator circuits and transistors and their types CB,CE,CC etc.➤ Concepts of regulated power supply, rectifiers, filters and regulator.
3.	Nuclear and Radiation Physics SCIB3506	<ul style="list-style-type: none">➤ To learn general properties of nuclei, various nuclear models, radioactivity.➤ To understand nuclear reactions and interaction of nuclear radiation with matter.➤ To know about the detectors for nuclear radiations and particle accelerators.➤ To learn and understand fundamentals of particle physics.
4.	Practical SCIB3507	<ul style="list-style-type: none">➤ Clear concept of diodes, transistor, FET.➤ Understand the concept of half wave and full wave rectifier. ➤ Studied about working of thermistor.➤ Students will learn to do practical's as an application of what they study in theory.

B.Sc. 6th Semester

S.NO	COURSE/ CODE	OUTCOME
1.	Condensed Matter Physics-II SCIB3604	<ul style="list-style-type: none">➤ To study about lattice vibrations, Einstein and Debye model of specific heat.➤ To learn about free electron, Fermi gas and Fermi energy.➤ Band theory, Kronig-Penney model, Semi conductors.➤ Superconductivity and BCS theory.
2.	Electronics-II SCIB3605	<ul style="list-style-type: none">➤ Understand about topics Thyristor SCR, TRIAC, DIAC and their difference.➤ Types, construction, characteristics, uses, advantages of thermistor.➤ IMPATT and TRAPATT Devices.➤ Understand about Transistor biasing, amplifier, FET, diodes.
3.	Nuclear and Particle Physics SCIB3606	<ul style="list-style-type: none">➤ To learn about energy loss, cyclotron, betatron, synchrotron.➤ To understand ionization chamber, Proportional counter, GM counter, scintillation counter.➤ To learn about detectors and elementary particles.➤ Quark model and their qualitative discussion.
4.	Practical SCIB3607	<ul style="list-style-type: none">➤ Working of GM counter understand by the student while performing the experiment.➤ Studied about working of thermistor.➤ Study about characteristics of transistor.➤ Students will apply various methods of calculations such as graphical etc.

Department of Physics

1. Sunita Saini

2. Balwinder Kaur

