

Subject-Physics

PDF SIGNER DEMO VERSION



B.Sc. General in Physics

Course code	Course Name	Course Outcome	
PHSGGE1P	ELEMENTS OF	Students are able to learn the various aspect of modern physics	
	MODERN PHYSICS		
PHSGGE1T	ELEMENTS OF	This course improves	
	MODERN PHYSICS LAB	experimental knowledge on modern physics.	
PHSGGE2T	THERMAL PHYSICS AND STATISTICAL	Gain knowledge on basics on	
	MECHANICS	thermal physics and statistical mechanics.	
PHSGGE2P	THERMAL PHYSICS AND STATISTICAL	This course enhance the	
	MECHANICS LAB	experimental skill on thermal physics and statistical mechanics.	
PHSGGE3T	SOLID STATE PHYSICS	Student will gain knowledge on solid state physics.	
PHSGGE3P	SOLID STATE PHYSICS	This is a course on experimental	
	LAB	technique based on solid state physics.	
PHSGGE4T	ELECTRICITY AND	This course enhance the	
	MAGNETISM	understanding on electricity and magnetism.	
PHSGGE4P	ELECTRICITY AND	This course provides experimenta	
S	MAGNETISM LAB	knowledge on electricity and magnetism.	

-9.0	PSO-1 Demonstrate, solve and an understanding of major concepts in all disciplines of Physics.			
2 47	PSO-2 Solve the problem and also think methodical independently and draw a logical conclusion.			
Programme	PSO-3 Employ critical thinking and the scientific knowledge to design, carryout, record and analyze the results of Physics			
Outcome	 experiments. PSO-4 Create an awareness of the impact of Physics on the society, and development outside the scientific community. PSO-5 Become professionally trained in the area of theoretical and experimental physics. 			



Subject - Chemistry

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SIDDHINATH MAHAVIDYALAYA (Govt. Aided) Estd.-2013 SHYAMSUNDARPUR PATNA • PANSKURA • PURBA MEDINIPUR • PIN • 721139 • Phone • 03228-255030 email - siddhinathmahavidyalaya@gmail.com

B.Sc. General in Chemistry CBSS

PROGRAMME SPECIFIC OUTCOME

Sufficient reference books, well equipped laboratories, sophisticated instruments, digital and computational facilities, group work along with effective teaching, learning & evaluation are provided to the chemistry students by Chemistry Department for fruitful running of the UG courses in Siddhinath Mahavidyalaya, S.S PATNA As a result from the above facilities the following outcomes are revealed

Depth and breadth of knowledge

>Student will be able to gather the f<mark>un</mark>damental scientific principles in the different fields of chemistry (analytical, inorganic, organic and physical) and apply these principles to solve problems.

>They will be able to apply the relevant knowledge to solve the problems that emerge from the broader interdisciplinary subfields (e.g. life, environmental and materials sciences). As a result they will be able to explore the new area of research and education.

Familiar with methodologies

>Students will be able to assemble a lot of knowledge about various procedures of chemical analysis, synthesis and monitoring of chemical reactions. They can also learn the techniques for safe use and handling of chemicals.
> The students are able to use modern online searching and retrieval methods to obtain

information about different chemicals, synthetic procedures or any issue relating to

chemistry.

Application of knowledge

>Students will be able to identify and describe the underlying principles behind the chemical techniques relevant to academia, industry and government in addition. >Under proper guidance they will be able to apply the methodologies in order to conduct new chemical synthesis (during project work), analysis or other chemical investigations.



>Students will be able to develop a confirmable hypothesis, execute experiments

related to research, compliable raw data and provide conclusion.

Communication skills

>Students can gain the power to prepare logical, organized and concise write up and oral and poster presentations that effectively communicate chemical content to other people.

Awareness of the limits of knowledge

>The students can recognize assumptions and limitations in the scientific models and

simulations and also propose their possible impact on the results.

>The can achieve the capability to identify source of errors in analytical experiment.

Scope for future in interdisciplinary field

>Through proper learning of full UG course in chemistry, a student can get various opportunities for their future work in interdisciplinary field like biochemistry, nano fields, polymer science and industrial chemistry.

Job Opportunity

>After completion of B.Sc. UG course in Chemistry, the majors are able to gain experiences in critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments. Finally, they will be sufficiently trained to get employment in Govt. sector, non Govt. sector or in chemical/ pharmaceutical industry.

B.Sc. General in Chemistry

(CBCS)

Course Code Course Name

CEMGCC01 DSC 1AT , DSC1AP

Course Outcome



Detail knowledge of atomic Structure, Bonding, general organic chemistry & aliphatic hydrocarbons. Practically gravimetric estimation of metal ions and identification of organic functional group.

CEMGCC02 DSC1BT , DSC1BP

Course Outcome

A detail knowledge about chemical energy, ionic equilibria, chemical equilibria ans all aromatic hydro carbins. Practical knowledge about the determination of different enthalpy and heat capacity.

CEMGCC03 DSC1CT ,DSC1CP

Course Outcome

A detail knowledge about solution chemistry, phase equilibria, conductance and electro chemistry. A cenceptual idea about different bio organic compounds. Practical knowledge about the potentiometric and conductometric titration and a practical knowlede related to bioorganic compounds.

CEMGCC04 DSC1DT , DSC1DP

Course Outcome

A vast knowledge about coordination chemistry, VBT, CFT, solid, liquid and kinetic theory of gas. Practical knowledge about cation and anion radicle detection, and use spectroscopic methods related to the metal complexes.

CEMGSE01 SEC 1T , SEC1P

Course Outcome

A basic idea about the analysis methods of soil, water food and a concept abut ion exchange and chromatography. Practical knowledge of food analysis and separation of compounds by TLc and ion exchange.

CEMGSE02

SEC 2T

Course Outcome

Basic understanding of the structures, properties and functions of carbohydrates, lipids and proteins and related practical knowledge

CEMGSE03 SEC3T , SEC3P

Conceptual knowledge about Drugs & Pharmaceutical chemistry and a practical knowlwdge related to this



CEMGSE04 SEC4T

Course Outcome

A basic knowledge about fuel chemistry.

CEMGDSE01 DSE 1T ,DSE 1P

Course Outcome

Conceptual idea about different spectroscopic techniques like IR, NMR, UV, tharmal analysis, electro analytic methods, and some separating techiques of organic compounds. In practical separation of metal ions, and organic compounds by TLC, detection of pH and exchange capacity of ions.

CEMGDSE02 DSE 2T , DSE 2P

Course Outcome

A vast knowledge about the application of computer in chemistry. Practical knowledge about the programming of chemical equation.

B.Sc. General in Chemistry (NEP)

MINOR CEM(Disc-I) CEMMI01T,CEMMI01P

Course Outcome

Conceptual knowledge about Atomic structure, Acids and Bases, Redox reaction & States of Matter.

MINOR CEM(Disc-II) CEMMI02T,CEMMI02P

Course Outcome

A vast knowledge about States of Matter & Chemical Kinetics.



Subject-Geography

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Programme-Specific Outcome or Course-Specific Outcome:

B.Sc. General in Geography CBCS

Programme Specific Outcome (PSO)

- Student will gain the knowledge of physical geography. They will gather knowledge about the fundamental concepts of Geography and will have a general understanding about the geomorphologic and geotectonic process and formation. Imbibing knowledge, skills and holistic understanding of the Earth, atmosphere, oceans and the planet through analysis of landform development; crustal mobility and tectonics, climate change.
- Associating landforms with structure and process; establishing man-environment relationships; and exploring the place and role of Geography vis-a-sis other social and earth sciences. Students can easily correlate the knowledge of physical geography with the human geography. They will analyze the problems of physical as well as cultural environments of both rural and urban areas. Moreover they will try to find out the possible measures to solve those problems
- Understanding the functioning of global economies, geopolitics, global geostrategic views and functioning of political systems
- Developing a sustainable approach towards the ecosystem and the biosphere with a view to conserve natural systems and maintain ecological balance. o PSO 5 –The physical environment, human societies and local and/or global economic systems are integrated to the principles of sustainable development
- Inculcating a tolerant mindset and attitude towards the vast socio-cultural diversity of India by studying and discussing contemporary concepts of social and cultural geography. Explaining and analyzing the regional diversity of India through interpretation of natural and planning regions.
- Analyzing the differential patterns of the human habitation of the Earth, through studies of human settlements and population dynamics. Understanding and accounting for regional disparities, poverty, unemployment and the impacts of globalization
- Understanding the history of the subject; over viewing ancient and contemporary geographical thought and its relationship with modern concepts of empiricism, positivism, radicalism, behaviouralism, idealism etc.
- Sensitization and awareness about the hazards and disasters to which the subcontinent is vulnerable; and their management.
- As a student of the Course they will enrich their observation power through field experience and in future this will be helpful for identifying the socio- environmental problems of their community.

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Training in practical techniques of mapping, cartography, software, interpretation of maps, photographs and images etc; so as to understand the spatial variation of phenomena on the Earth's surface. They will learn how to prepare map based on GIS by using the modern geographical map making techniques.

GEOGCC01

Physical Geography :- Outcomes

This study is very important to understand about our planet.

GEOGCC02

Human Geography:- Outcomes

It examines human societies and how they developed, their culture, economy and politics, all

within the context of their environment.

GEOGCC03

Maps and Diagrams:-.. Outcomes

It involve the superimposition of political, cultural, or other non-geographical divisions onto the representation of a geographical area.

GEOGCC04

EnvironmentalGeography:- Outcomes

It describes the spatial aspects of interactions between humans and the natural world.

GEOGSE01

Remote sensing

Outcomes

It is the process of acquiring details about an object without physical on-site observation using satellite or aircraft.

GEOGSE02

Computer basics:-.

Outcomes



It has enriched the discipline of geography with the development of automated geography,

GEOGSE03

Remote Sensing and GPS based ProjectReport:- Outcomes

It enables the user to determine very accurate locations on the surface of the Earth.

GEOGSE04

Field Techniques andSurvey based ProjectReport:- Outcomes

Fieldwork provides an opportunity for students to developtheir sensitivity to and appreciation of a wide range of different environments.

GEOGDS01

Geography of India:- Outcomes

It helps to know the physical, cultural and economic aspect of the country.

GEOGDS02

Economic Geography:- Outcomes

It helps to know the spatial aspects of wealth and poverty, innovation and productivity, trade and exchange, and theworld's non-random distribution of its physicaland human resources.

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Subject - Botany

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B.sc General in Botany

Programme Specific Outcome

Programme Outcome This programme will produce competent plant biologists who can employ and implement their gained knowledge in basic and applied aspects that will profoundly influence the prevailing paradigm of agriculture, industry, healthcare and environment to provide sustainable development. It will increase the ability of critical thinking, development of scientific attitude, handling of problems and generating solution, improve practical skills, enhance communication skill, social interaction, increase awareness in judicious use of plant resources by recognizing the ethical value systems. The training provided to the students will make them competent enough for doing jobs in Govt. and private sectors of academia, research and industry along with graduate preparation for national as well as international competitive examinations, especially UGC-CSIR NET, UPSC Civil Services Examination, IFS, NSC, FCI, BSI, FRI etc.

Old Syllabus Outcome

B.sc(G).year-1, Sem -1

Code course Name

Course : DSC1A

Biodiversity (microbes, algae and fungi)

After the completion of the course the students will be able to: 1. Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance. 2. Develop conceptual skill about identifying microbes, pathogens, biofertilizers & lichens. 3. Gain knowledge about developing commercial enterprise of microbial products. 4. Learn host –pathogen relationship and disease management. 5. Learn Presentation skills (oral & writing) in life sciences by usage of computer of computer & multimedia 6. Gain Knowledge about uses of microbes in various fields. 7. Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens 8. Gain Knowledge about the economic values of this lower group of plant community.

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B.sc(G).year-1, Sem -2

Course : DSC1B

Code course Name

Plant ecology and taxonomy

Course outcomes: 1. acquaint the students with complex interrelationship between organisms and environment; 2. make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography. 3. This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation. Course outcomes: After completing this course a student will have: Project work will supplement field experimental learning and deviations from classroom and laboratory• transactions. project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and• decision-making processes It will promote creativity and the spirit of enquiry in learners.• They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions,• Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing It will enhance their abilities, enthusiasm, and interest.•



B.sc(G).year-2, Sem -3

Code course Name

Course : DSC1C

Plant anatomy and embryology

Course outcomes: As in all experimental sciences, research in plant anatomy depends on the laboratory methods that can be used to study cell structure and function. Many important advances in understanding cells have directly followed the development of new methods that have opened novel avenues of investigation. An appreciation of the experimental tools available to the cell biologist is thus critical to understanding both the current status and future directions of this rapidly moving area of science. The elements of the plant cell are the membrane and the protoplast. The protoplast includes the cytoplasm, the nucleus, the plastids, the mitochondria, and other organelles. In the past, the chief objects of study in plant anatomy were the vegetative organs (stem, root, and leaf); today, attention is also given to the structure of flowers, fruits, and seeds. Within the field of plant anatomy there is: (1) Physiological plant anatomy, which is concerned with the links existing between plant structure and internal processes. (2) Ecological plant anatomy, which is the study of environmental effects on plant structure. (3) Pathological plant anatomy, which is the study of the effect of disease-producing agents of a biological, physical, and chemical character on plant structure, and (4) Comparative or systematic plant anatomy, which introduces the comparative study of representatives of the different systematic groups (taxa) - species, genera, families, and so forth for the clarification of their phylogenetic bonds.

B.sc(G).year-2, Sem -4

Course : DSC1D

Code course Name Plant physiology and metabolism

Course outcomes: After the completion of the course the students will be able to: 1. Understand the role of Physiological and metabolic processes for plant growth and development. 2. Learn the symptoms of Mineral Deficiency in crops and their management. 3. Assimilate Knowledge about Biochemical constitution of plant diversity. 4.Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants. TNA.

B.sc(G).year-3, Sem -5

Course : DSE1A

Code course Name

Cell and molecular biology

Course outcomes: After the completion of the course the students will be able to: 1. Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process. 2. Know about Processing and modification of RNA and translation process, function and regulation of expression. 3. Gain working knowledge of the practical and theoretical concepts of bioinformatics.



B.sc(G).year-3, Sem -6

Code course Name

Course : DSE1B

Research methodology

Course outcomes: After completing this course a student will have: • An idea about the historical background and need of Operations research. • Ability to identify and develop operational research models from the verbal description of the real life problems. • Knowledge of the mathematical tools that are needed to solve optimization problems. • Ability of solving Linear programming problem, Transportation and Assignment problems, Job sequencing, etc. • Ability to solve the problems based on Game Theory.

B.sc(G).year-3, Sem -5

Course : SEC-1

Code course Name

Biofertilizers

- 1. Biofertilizers supplement the requirements of fertilizers and do not replace them.
- 2. The use of biofertilizers is being emphasized along with chemical fertilizers and organic manures.
- 3. Biofertilizers are live products (or latent cells of microbes) and require care in storage, transport, application and maintaining field conditions.
- 4. Ability to distinguish the types of biofertilizers.
- 5. Development of integrated management for best results uses both nitrogenous and phosphatic biofertilizers.
- 6. Applied to seed/seed material/seedlings/soil/waste matter/crop residues in order to increase the population.
- 7. Accelerate some biochemical processes.
- 8. Make more nutrients available to the crops.

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B.sc(G).year-3, Sem -6		PI
Course : SEC-2		

Code course Name

Ethnobotany

After going through this unit student will be able to-

• Define the ethnobotany and discuss the scope of the subject area covered by this discipline. • to understand about the concept of Ethnobotany

• Discuss the historic roots of ethnobotany



• Discuss the role, importance and contribution of ethnomedicine, ethnopharmacology, ethnoecology, ethnogynaecology, ethnomycology, etc., in our modern civilization.

B.sc(H).year-2, Sem -3

Course : GE-3

Code course Name

Economic Botany

Course outcomes: After the completion of the course the students will be able to: 1. Understand about the uses of plants –will know one plant-one employment 2. Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants 3. know about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times.

B.sc(H).year-2, Sem -3

Code course Name

Course : GE-3

Plant Anatomy Band Embryology

Course outcomes: As in all experimental sciences, research in plant anatomy depends on the laboratory methods that can be used to study cell structure and function. Many important advances in understanding cells have directly followed the development of new methods that have opened novel avenues of investigation. An appreciation of the experimental tools available to the cell biologist is thus critical to understanding both the current status and future directions of this rapidly moving area of science. The elements of the plant cell are the membrane and the protoplast. The protoplast includes the cytoplasm, the nucleus, the plastids, the mitochondria, and other organelles. In the past, the chief objects of study in plant anatomy were the vegetative organs (stem, root, and leaf); today, attention is also given to the structure of flowers, fruits, and seeds. Within the field of plant anatomy there is: (1) Physiological plant anatomy, which is concerned with the links existing between plant structure and internal processes. (2) Ecological plant anatomy, which is the study of environmental effects on plant structure. (3) Pathological plant anatomy, which is the study of the effect of disease-producing agents of a biological, physical, and chemical character on plant structure, and (4) Comparative or systematic plant anatomy, which introduces the comparative study of representatives of the different systematic groups (taxa) - species, genera, families, and so forth for the clarification of their phylogenetic bonds.

New Syllabus Outcomes

B.sc(G).year-1, Sem -1

Course : BOTPMJ101

Code course Name Plant Groups and Texa

After completing this paper students will be able to understand and explain

History, nature and classification of Viruses



- Genome organization and replication of TMV, Bacteriophages and viroids
- Techniques in plant viruses purification, serology and electron microscopy
- Economic importance of viruses
- History, nature and classification, bacterial genome and plasmids of Bacteria
- Bacterial reproduction, techniques of sterilization and staining
- Economic importance of Bacteria
- History, nature and classification, thallus organization and reproduction of fungi
- Economic importance of fungi.

The life cycles of Albugo, Pythium,; Saccharomyces, Aspergillus; Ascobolus; Ustilago, Puccinia, Polyporus,
Agaricus; Fusarium, Cercospora.

- General characters and range of thallus organization of Algae
- Classification and ultrastructure of eukaryotic algal cell and cyanobacterial cell
- Economic importance of Algae

• The characteristics and life cycles of Oscillatoria Volvox, Hydrodictyon, Oedogonium, Chara, Navicula, Vaucheria, Ectocarpus, Saragassum and Polysiphonia.

- Classification and thallus organization of Lichens
- Reproduction and physiology, ecological and economic importance of lichens.
- General characters, classification, reproduction and affinities of Bryophytes.
- Gametophytic and saprophytic organization of Riccia, Marchantia, Anthoceros and Pogonatum.
- General features, classification, stelar system (with its evolution) of Pteridophytes
- Heterospory and seed habit.

• Comparative study of morphology, anatomy, development, vegetative and reproductive systems of Lycopodium, Selaginella; Rhynia Pteridium, Equisetum. Marsilea.

- General characters, classification, affinities and relationship and evolutionary significance of Gymnosperms

 Comparative study of morphology, anatomy, development of vegetative and reproductive parts in: Cycas, Pinus and Ephedra.

• Elementary Palaeobotany: general account, types of fossils, methods of fossilization and geological time scale.



