Government of West Bengal
TAKI GOVERNMENT COLLEGE
P.O. Taki, North 24 Parganas, Taki–743429, West Bengal
Phone: (03217)-234474; Fax: (03217)-234566; Website: http://www.tgc.ac.*in*/

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PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES AND COURSE OUTCOMES FOR ALL THE PROGRAMS OFFERED BY THE INSTITUTION

PROGRAMME OUTCOME (PO)

- To impart English based undergraduate level education i.e. **Bachelor Degree** in **Science and Arts courses** in accordance with University (WBSU) and UGC guidelines.
- Understanding and Correlating between **Theory and Experimental aspects** of the subjects. Highly essential for Laboratory based subjects.
- Developing concepts in **Pure Subjects** along with **Applied and Interdisciplinary subject Areas** for **real life applications**.
- Identify various **Academic and Professional areas**.
- Catering to the needs of **present day problem thrust areas** and **service to human race**.

PROGRAMME SPECIFIC OUTCOMES (PSO) – [ARTS FACULTIES]

- Bengali – Bengali UG-Courses offered- Bachelor Degree- Covered more syllabus and colourful diversity in Semester system- develop proficiency acumen, language skills in reading, writing, interpreting communication, journalism, film studies etc.
- English – The courses offered in the CBCS model syllabus, adopted by WBSU, focuses on empowering students of English Honours, to engage critically with the many texts that compose our consciousness of the world.
- The courses are specifically designed to help students develop skills in research, argumentative writing, critical thinking and communication skills and literary analysis, build a foundation for postgraduate study or research, and, most important, appreciate the expressive and affective potential of language as a medium for diverse cultural experiences.
- The students would be exposed to various forms of traditional and contemporary forms of literary culture.
- Intimate engagement with texts from across a vast spectrum would hone their critical faculties necessary for research and academic career, and lead to a development of intellectual flexibility, creativity and cultural literacy.
- The courses are informed by the principle of representation of literary and cultural texts within a significant number of historical, political and cultural contexts, which should necessitate application of theoretical approaches to their reading and analysis.
- On successful completion of the course the student should ideally be able to identify, analyze and critically interpret the ideas, values and themes that inform the prescribed texts.
- History –. After successful completion of B.A. three-year-degree course (Honours, divided in Six Semesters) in History, a student is expected to develop a critical approach to the study of History as a discipline which would enable him /her to distinguish between History and *Itihasa*, historical fact and myth and finally he or she will be able to understand the fact that the subject of History is not static and there is no definite historical 'truth'. A History student is expected to achieve the following outcomes:
- Understanding the theories and history of historical writing;
- Developing perspectives on historical inquiry to understand different values and beliefs that

shaped and affected the lives of the multiple cultures in the past;

- Recognition of continuity and change, sequence of historical events across every civilization and any given period of time;
- Understanding the concept of cause and effect to identify chains of events and developments, both in short term and long term. This concept aims to identify, examine and analyze the reasons why events have occurred and the resulting consequences or outcomes;
- Developing a range of historical skills, essential for the process of historical inquiry;
- Understanding the origin and purpose or usefulness of primary and secondary sources and their application while doing research or in the production of well researched work.
- Sanskrit – Overall design of the course ensures that certain set of skills and core competencies are expected to be demonstrated by the students at the end of the course. These are as follows
- **Disciplinary knowledge**, whereby they demonstrate extensive and coherent knowledge and understanding of the subject as a whole and its applications, and links to inter-disciplinary areas/subjects of study.
- **Communication Skills**, whereby they can accurately communicate main concepts, arguments, and techniques of the study under different contexts.
- **Critical thinking**, whereby they gain knowledge, understanding and skills required for identifying problems and issues.
- **Analytical reasoning**, whereby they develop skills in identification and collection of relevant quantitative and/or qualitative data and analysis and interpretation of the same.
- **Research-related skills**, whereby they gain knowledge about materials, including current research, scholarly, and/or professional literature about the chosen disciplinary areas and field of study.
- **Cooperation/Teamwork**, whereby they can apply disciplinary knowledge and transferable skills among diverse groupings and are able to create coordinated effort.
- **Multicultural competence**, whereby they gain knowledge of the values and beliefs of multiple cultures and a global perspective.
- **Moral and ethical awareness**, whereby they are able to formulate an understanding about an ethical issue from multiple perspectives and use ethical practices in all work.
- Philosophy – Helps in evolving the skill of thought synthesis, analytical and abstract thought processing. Additionally, socio-political philosophy, principles of logic and philosophy of religion, mind and different tenets of psychologyamply help in human resource development, understanding basic principles of different religions which in turn culminate into building a harmonious religious ambience.
- Political Science – Overall design of the course ensures that certain set of skills and core competencies are expected to be demonstrated by the students at the end of the course. These are as follows
- **Disciplinary knowledge**, whereby they demonstrate extensive and coherent knowledge and understanding of the subject as a whole and its applications, and links to inter-disciplinary areas/subjects of study.
- **Communication Skills**, whereby they can accurately communicate main concepts, arguments, and techniques of the study under different contexts.
- **Critical thinking**, whereby they gain knowledge, understanding and skills required for identifying problems and issues.
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- Botany: –

1. Proper evaluation and sustainable utilization of plant biodiversity for the benefit of human beings, to broaden the list of useful plants also to ensure global food security.
2. To increase the awareness about the increasing environmental threat on human population.
3. Proper characterization and identification of plant species for proper utilization in breeding program.
4. Application of biotechnological methodologies for human welfare.
5. Identification and categorization of plant communities and their interdependence to sustain ecological balance.
6. To enrich the students with the knowledge about the building blocks of organisms and biomolecules
7. To acquaint the students about the microbial world with their influence and application.
8. To develop knowledge about plant diseases caused by various pathogens and their implications and control.

- Chemistry:– The purpose of the undergraduate chemistry program (under the affiliation of WBSU) is to provide the key knowledge base and laboratory resources to prepare students for careers as professionals in the field of chemistry. The course offers Choice Based Credit System that enable students a firm foundation in the fundamentals and applicationof current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistry including the synthesis of organic compounds and ability to determine kinetic and thermodynamic phenomena of reactions with the help of modern instrumental techniques. Practical skill development for quantitative and qualitative analysis of a sample enables the students to expertise in problem solving, critical thinking and analytical reasoning as applied to scientific problems and will be able to function as a member of an interdisciplinary problem solving team.

- Economics:–

  - A thorough understanding of the basic macro and micro economic theory.
  - Knowledge of Statistical and Mathematical tools and software necessary to solve real life economic problem.
  - Basic understanding of econometrics and ability to use basic econometric tools and software to tackle economic problems
  - Understanding the basic theories and principles in Development Economics and apply the knowledge to understand problems like poverty, inequality environmental degradation and climate change facing the world today.
  - Understand and analyze the basic issues and problems of the Indian economy.

Geography The study of Geography under the new CBCS give rise to the following specific outcomes:

- The study of **Geotectonics and Geomorphology** helps to gain an insight into the processes of landform development. The knowledge of weathering processes, erosion processes enable them to assess the existing situation of landforms and hazard vulnerability such as floods, coastal erosion and landslides.
- The branches of **Economic Geography and Human Geography** make them capable of identifying the development prerogatives of regions and applying them in formulation of regional development plans. Regional Development and Planning has been included under CBCS syllabus separately and this ensures a fundamental knowledge of appropriate resource use and future

planning .Geographers can make themselves useful in Planning Bodies especially Urban Planning. They learn to understand processes and models of urban development, as well as assess problems of such areas.

- **Resource Geography and Disaster Management** are contemporary issue related subjects that provide the students with an indepth understanding of the causes and management techniques of floods, landslides, etc. This gives them prior knowledge for working in disaster control boards. Infact they have to prepare a Disaster Management Report as part of their practicals.

- **Field Research and Methodology** is a recently included paper under CBCS syllabus. This creates a strong foundation for future pursuing of PhD courses as it includes modern field survey methods. Field project report is the practical part that allows the application of the theory.

- **Population Geography** becomes an integral part of Geography .The implications of population structures, growth and migration are studied in detail. They are thus made eligible for their contribution in Population Policies and Census Data Collection and Analysis.

- An elaboration of **Applied Statistical Techniques** has been incorporated in the CBCS syllabus where regression analysis, probability studies and time series analysis are being taught. This will help the students to analyse statistically any aspect such as floods, droughts, population trends, agricultural and industrial production trends, etc. Hence, they may be applied in Departments where accuracy of data observations and their interpretation count. Central Water Commission, Census Organizations have their applicability.

- The inclusion of **Skill Enhancement Techniques** in CBCS syllabus will introduce them to Remote Sensing and use of Geographical Information System softwares that will train them for recruitment in Government Space Application Projects that use GIS and satellite image interpretations for resource mapping and planning. This has been implemented in the State Space Application Centres that map land resources as for example Odisha SAC. Another is the National Atlas and Thematic Mapping Organization (NATMO).

- **Climatology, Soil Geography and Biogeography** introduce the students to the factors leading to the development and characteristics of climatic regions, soil regions, floral and faunal regions. The knowledge of monsoon mechanisms, ENSO phenomenon, cyclone mechanisms will help in application of flood and drought hazard studies. Under biogeography they learn to compile information and data on these combined aspects of pedology, botany and zoology. This holistic knowledge makes them capable of assessing and developing forestry projects, wildlife conservation plans and probable land use policies of rural areas.

- Mathematics – Fundamental Skills in Pure and Applied Mathematics, Statistical Mathematics, Mathematical Modelling, Mathematical Reasoning, Geometrical and Topological ideas to shape global structure, Automata, Computational Methods, Mathematical logic and Computer programming.

- Physics –. The Department of Physics of Taki Government College is offering six semester undergraduate courses (Honours and General) in Physics under Choice Based Credit System (CBCS) under the affiliation of West Bengal State University. A student may either choose a Honours course in Physics or may opt for Physics as a General subject. On the completion of under-graduate (B.Sc.) course in Physics,

- Students learn the basic theories of physics rigorously which make them understand the fundamental principles governing the Universe. The very basic nature of Physics is to make a student develop a skill to analyze every situation in the life with a logical view.

- Students learn, through numerical exercises, to apply various mathematical techniques to understand different aspects of Physics.

- They have the experience of experimental verification of the physical theories through various hands-on experiments in the well-equipped laboratory.

- Students learn the numerical analysis using Computer programming languages like PYTHON, C++ .
- Students, getting graduated with Honours in Physics, can pursue Physics at more advanced level through post-graduate studies, integrated-PhD courses in pure physics or in any other branches of it at reputed Institutes.
- The general courses trains the students such a way that they can apply for the jobs where a background in physics is a necessity.
- Students are also motivated to equip themselves for appearing in different competitive examinations for academic as well as administrative services.
- Zoology – 1. Introduce the students to the world of Non-Chordates and Ecosystem where they acquire the knowledge of population, community and various aspects of wild life.

2. In the second program, the students continue to study Non-Chordates as well gets exposure to the world of cell biology, learning the basic concepts of cell organelles and, cell division and how cell signalling.

3. Through this program, the students learn about various aspects Chordate biology. Simultaneously they are provided with the knowledge of physiology, endocrinology and biochemistry.

4. Here, the students are introduced to anatomy of the body, comparative analysis of various systems and their physiology. Further, they learn how the body's immune system functions.

5. Genetics of life and molecular biology are taught in this program. They are also introduced to various techniques of experimental biology.

6. Basic concepts of Developmental biology and Evolutionary biology are provided to the students in this program.

COURSE OUTCOME (CO)

Course Outcomes are statements clearly describing the meaningful, observable and measurable knowledge, skills and/or dispositions students will learn in this course.

BENGALI

- Student will have acquire knowledge of basic Bengali Grammar and vocabulary.
- Students will have the knowledge and understanding of the appropriateness of basic bengali structure and expression in a given text.
- Students will have the ability to produce short passages in written bengali on everyday topics.

ENGLISH

- The course is designed to create an objective awareness about the cultural diversity of India, and equip the students with theoretical tools to properly analyze and contextualize the wellsprings of our present socio-cultural scenario.
- This course offers the students the opportunity to engage with the antiquarian European legacy of the English literary art through specific studies of ancient Greek and Roman literary texts in translation.
- The course would familiarize the students with the issues of nation, secularism, caste, gender, region and identity inherent in these writings and facilitate a more nuanced engagement with current critical frameworks such as postcolonialism, feminism, etc.
- This course will enable students to understand the ideological and socio-cultural background of the period between the latter part of the Middle ages and the Renaissance, and also understand the repercussions, in the history of humankind, of the momentous changes this period witnessed.
- Through a focus on close textual analysis, interpretation and evaluation of the prescribed texts, the course aims at inculcating an understanding of the major genres of early American literature as well as the various literary techniques that writers use in constructing their texts.
- This course engages with various forms of popular writing, e.g., best-sellers, graphic narrative, science fiction, fantasy, the detective story, etc. An exposure to the theories and pedagogy of this emerging area of research is expected to help students gain a better understanding of the popular roots of literature, and better negotiate the issues of gender, race, colonialism, ethics, problematization of canonicity, which operate in this seemingly innocuous genre.
- The course surveys British literature from the later Renaissance to the eighteenth-century, with special focus on Milton, Pope and Webster. The course would showcase major literary moments, movements and events in the context of the social, political, religious and economic changes that shaped England and its history from the 17th and 18th centuries onwards.
- This course involves the analysis of literary works of the Eighteenth Century and investigation of germane contexts. The course is designed to enable students to track the development of genres across periods, and develop a sense of eighteenth-century literature as a whole, identify key elements that are distinctive to the artistic achievement of some major 18th century writers.
- This course examines works of major authors of the English Romantic period with emphasis on the aesthetic and philosophical foundations of English Romantic literature. By situating these authors in their historical context of rapid social change and violent political upheavals, a thorough understanding of the historical and cultural context of English Romanticism would be promoted among the students.
- The focus of the course will be the British literary modernism— the social and cultural phenomena that constitute twentieth-century life, and the aesthetic response to these phenomena. The prescribed texts pursue several significant issues relating to British literature during and after the first world war, in the period of high modernism. The students will be introduced to major works by Eliot, Yeats, Woolf, Joyce, Conrad and Lawrence.

- A principle goal of the course is for students to achieve an in depth understanding of the key concepts and issues of postcolonial theory, such as, empire, language, hybridity and mimicry, cultural identity and diaspora, representation and resistance.

SANSKRIT

- Students will develop an increased ability to read and understand Sanskrit texts & vedic text & literature.
- Students will have an increased knowledge and understanding of Sanskrit grammar
- Students will learn basic familiarity of the history of Sanskrit literature
- Students will understand basic familiarity of Sanskrit culture and religious background.

HISTORY

The existing Course gives the students of History immense knowledge about significant historical changes of mankind. The current syllabus is well chosen to represent historical developments from ancient times to the present day from different angles, emphasizing on new aspects and perspectives. After successful completion of the course, the students will be able to pursue further studies or they can take preparations for various competitive examinations.

POLITICAL SCIENCE

Students graduating in Political Science

- Will be able to formulate and construct logical arguments about political phenomena and an ability to evaluate these through empirical and theoretical methods
- Will have the understanding of how political institutions emerge, how they operate, how they interact with their external environment, and how they shape individual and collective behaviour.

PHILOSOPHY

Students graduating in Philosophy will be able to

- Imbibe some fundamental ethical concepts like the concept of supreme good
- Encounter and synthesize key ethical or moral issues that arise in everyday life like right, free will,determinism, relativism, absolutism, obligation, virtue, moral actions including some basic moral values like friendship, trust , love, fidelity, promise making, dignity, honor, respect.
- Develop basic aesthetic concepts
- Implement practicallynlogical principles and abstract thinking for examining, assessing and addressing key ethics, epistemic, socio-political and value related issues.

GEOGRAPHY

- Students will develop a solid understanding of the concepts of ―space," ―place‖ and ―region‖ and their importance in explaining world affairs.
- Students will understand general demographic principles and their patterns at regional and global scales.
- Students will be able to locate on a map major physical features, cultural regions, and individual states and urban centers.
- Students will understand global and regional patterns of cultural, political and economic institutions, and their effects on the preservation, use and exploitation of natural resources and landscapes.
- Students will be able to understand RS and GIS-useful for mapping resources and analyzing data.

ECONOMICS

- The students should be able to explain core economic concepts and theories
- They should be able to apply their knowledge of economic theory to understand social and economic issues and analyze social and economic policies.
- The students should be able to use quantitative skills to analyze real life economic problems

PHYSICS

- This course lays the foundation for the students to get equipped with specific Mathematical tools like Calculus, Vector Calculus and Probability Distributions to probe and understand analytically various physical phenomena..
- This course introduces the students with classical mechanics of single as well as system of particles within the terrain of Newtonian formulation.
- This course enables the students to understand the distinct features of the theory of Electricity & Magnetism starting from Electrostatics, through generation of Magnetic Field and Force, and to Electromagnetic Induction.
- Students learn different number systems and Boolean Algebra alongwith simplifying a digital circuit using simplification method of Boolean expression.
- Students understand the development of different combinational digital circuits (like, Adder, Subtractor, Multiplexer, De-Multiplexer, Encoder, Decoder etc) and their working principle.
- Students learn to construct the different application oriented digital circuits by using of Karnaugh Map simplification as per requirement.

CHEMISTRY

Students graduating in Chemistry will be able to understand

- The fundamentals of acid/base equilibria, including pH calculations, buffer behavior, acid/base titrations, and their relationship to electrophiles and nucleophiles
- The thermodynamic and kinetic forces involved in chemical reactions which determine how much and how soon products are formed
- Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters
- General periodicity patterns of (organic/inorganic) molecules, and the ability to design synthetic approaches to such species.
- How to design and perform experiments to determine the rate, order, and activation energy of chemical reactions by varying concentrations and/or temperature
- Methods to measure equilibrium concentrations and equilibrium constants for acid-base, solubility, and complexation reactions given initial concentrations of reactant and quantitative and qualitative analysis of samples.

MATHEMATICS

Students graduating in Mathematics will be able

- To apply mathematical concepts and principles to perform computations.
- To use and analyze graphical representations of mathematical relationships.
- To communicate mathematical knowledge and understanding.
- To apply technology tools to solve problems.
- To use expertise in programming.
- To learn the interplay of mathematics with other subjects.

BOTANY

After successful completion of the course either Honours or general, students get their mark sheets with grade point. This time bound and well framed syllabi of the semesters is good enough to impart comprehensive knowledge of all the topics and sufficient enough too, to inculcate interest about any specific topic for future study. Such meaningful comprehensive knowledge of Botany would be helpful for overall understanding of the plant kingdom.

ZOOLOGY

- Students learn to identify the major groups of organisms within a phylogenetic framework.
- Students will learn the evolutionary phenomenon with scientific evidences and appreciate the unity and diversity of life on earth. They acquire the knowledge about modification has shaped animal morphology, physiology, life history, and behavior.
- Students will learn the level of the gene, genome, cell, tissue, organ and organ-system, physiological adaptations, development, reproduction and behavior of different forms of life.