Enclosure- BICII

Atmiya University

Faculty of Science

Department of Physics

B.Sc. Physics

Scheme of Learning and Evaluation

w.e.f. A.Y. 2023-24

ATMIYA UNIVERSITY
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OBJECTIVES OF THE PROGRAMME

- The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:
- To uphold the values embodied in the institute's vision and mission.
- To imparting knowledge of both pure science and applied science to support lifelong learning while maintaining high professional ethical standards.
- To work in a team using common tools and environments to achieve project/organizational objectives.
- To pursue life-long learning as a means of enhancing the knowledge base and skills necessary to contribute to the improvement of their profession and community ensuring essential knowledge to pursue M.Sc. & thereafter Ph.D. degree in Physics in progression.

GRADUATE ATTRIBUTES

- **Academic excellence:** Ability to identify key questions, research and pursue rigorous evidence-based arguments
- **Critical Thinking and Effective communications:** Analysis and evaluation of information to form a judgment about a subject or idea and ability to effectively communicate the same in a structured form.
- **Global Citizenship:** Mutual understanding with others from diverse cultures, perspectives and backgrounds
- **Life-Long Learning:** Open, curious, willing to investigate, and consider new knowledge and ways of thinking
- **Sense of purpose & curiosity:** Possess intellectual curiosity to apply the knowledge to generate, develop and realize new ideas
- **Ethics & lifelong immersive learning:** Adhered to highest standards of ethics and always amenable to new ideas and actively seek out new ways of learning
- **Collaborative lifelong learning:** Search and critically appraise skill, ideas, concept and information associated with discipline.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Our programme will produce Graduates who will attain following PEOs after few years of graduation		
PEO 1	**:**	**Core competency:**Develop skills of physical sciences including unit operations, unit processes, mass & energy balance, and mathematical modeling.
PEO 2	**:**	**Breadth of knowledge:** Interpret the fundamental concepts of Physics including sustainable energy sources, Electronics , Quantum, Classical and mathematical physics and material science.
PEO 3	**:**	**Preparedness:** will reflect professional behavior and have the potential to show preparedness to take any task or assignment in the capacity of a leader or team member in their chosen occupations or careers and communities.
PEO 4	**:**	**Professionalism:** will reflect values and responsibilities in the character to make them fit to work in a multidisciplinary team and to become socio-ethically responsible citizen.
PEO 5	**:**	**Learning environment:** will show attitude of self-learning abilities and keep themselves abreast with new development in all spheres of life.

PROGRAM OUTCOMES (POs)

After completion of the programme the Graduate will be able to:		
PO 1	**:**	**Domain knowledge:** Demonstrate the knowledge of concepts, principles, and applications of physics in various fields
PO 2	**:**	**Problem analysis:** Acquire critical thinking skills to understand and solve contemporary problems with physics domain knowledge and skills
PO 3	**:**	**Design/development of solutions:** Understand the complex physics problem and design structured mechanisms or processes that meet the specified needs
PO 4	**:**	**Conduct investigations of complex problems:** Gain ability to design, conduct experiments, analyze, and interpret data for investigating problems in physical sciences sectors.
PO 5	**:**	**Modern tool usage:** Understand standard operating procedures and acquire in-depth technical competence to handle the basic laboratory techniques and instruments
PO 6	**:**	**The physical science Professional and society:** Understand own role in society and act in an honest and consistent manner based on a strong sense of self and personal values.
PO 7	**:**	**Environment and sustainability:** Understand complex environmental issues and their

		interrelationships and requirement of interdisciplinary domains for sustainable development.
PO 8	**:**	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities.
PO 9	**:**	**Individual and teamwork:** Able to function effectively as individual and as a member in multidisciplinary environment.
PO 10	**:**	**Communication:** Communicate effectively using different modes (viz. written, verbal and digital) not only with scientific community but also with the society at large.
PO 11	**:**	**Project management and finance:** Understand the principles of management of finance and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environment.
PO 12	**:**	**Life-long learning:** Able to recognize the need to undertake life-long learning and acquire the capacity to do so.

PROGRAMME SPECIFIC OUTCOME (PSOs).

After completion of the programme the Graduate will:		
PSO 1	:	Acquire knowledge on the fundamentals of physics for sound and solid base which enables them to understand the emerging pure and applied sciences .
PSO 2	:	Equip the students to pursue higher education and research in reputed institutes at national and international level.
PSO 3	:	Understand knowledge of physics to find innovative solutions for environment & industry and research related issues.
PSO 4	:	Deduce the possibilities and impression of physics revolutions for finding sustainable ethical solutions to existing problem.
PSO 5	:	Explore problems related to physics and provide effective solution through industry-academia interactions.

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SCHEME OF LEARNING AND EVALUATION

For the students admitted from A.Y. 2023-2024 & onwards

Semester I									
Course Code	**Course**	**Contact Hrs/ Week**			**SEE Duration (Hours)**	**Maximum Marks**			**Credits**
						CIA	**SEE**	**Total**	
Ability Enhancement Courses		**T**	**Tu**	**P**					
23UGEN140	Functional English for Science	3	-	-	3	40	60	100	3
	Total (AEC)	**3**	**-**	**-**	**-**	**40**	**60**	**100**	**3**
Discipline Specific Core Courses (Major/Minor/MDC)*									
23UGCH101	Chemistry-I	4	-	-	3	30	70	100	4
23UGPY101	Physics-I	4	-	-	3	30	70	100	4
23UGMT101	Mathematics-I	4	-	-	3	30	70	100	4
23UGIC101	Industrial Chemistry-I	4	-	-	3	30	70	100	4
23UGCH102	Practical : Chemistry-I	-	-	4	3	50	50	100	2
23UGPY102	Practical: Physics-I	-	-	4	3	50	50	100	2
23UGMT102	Practical: Mathematics-I		-	4	3	50	50	100	2
23UGIC102	Practical: Industrial Chemistry-I	-	-	4	3	50	50	100	2
	Total (Core)	**12**	**-**	**12**	**-**	**240**	**360**	**600**	**18**
Value Added Course (VAC)									
23UGUH070	**VAC 1 (IKS):** Human Values for Holistic Living	2	2[$]	-	-	Evaluation by Remarks			3
	Total (VAC)	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**3**
	Total	**17**	**-**	**12**	**-**	**280**	**420**	**700**	**24**
		29				**700**			

*Students can opt for any three subjects from above four subjects i.e. Chemistry, Physics, Mathematics, and Industrial Chemistry with their practical.

After successful completion of semester-1 & 2 they have choice to select Major or Minor courses

$: To be offered in form of 5 days' workshop of total duration of 30 hours.

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Semester II									
Course Code	**Course**	**Contact Hrs/ Week**			**SEE Duration (Hours)**	**Maximum Marks**			**Credits**
						CIA	**SEE**	**Total**	
Ability Enhancement Courses		**T**	**Tu**	**P**					
23UGEN240	Advanced English & Correspondence	3	-	-	3	40	60	100	3
	Total (AEC)	**3**	**-**	**-**	**-**	**40**	**60**	**100**	**3**
Discipline Specific Core Courses (Major/Minor/MDC)*									
23UGCH201	Chemistry-II	4	-	-	3	30	70	100	4
23UGPY201	Physics-II	4	-	-	3	30	70	100	4
23UGMT201	Mathematics-II	4	-	-	3	30	70	100	4
23UGIC201	Industrial Chemistry-II	4	-	-	3	30	70	100	4
23UGCH202	Practical: Chemistry-II	-	-	4	3	50	50	100	2
23UGPY202	Practical: Physics-II	-	-	4	3	50	50	100	2
23UGMT202	Practical: Mathematics-II		-	4	3	50	50	100	2
23UGIC202	Practical: Industrial Chemistry-II	-	-	4	3	50	50	100	2
	Total (Core)	**12**	**-**	**12**	**-**	**240**	**360**	**600**	**18**
Skill Enhancement Course									
-	**SEC 1:** University-level Skill Enhancement Course	-	-	4	2	Evaluation by Remarks			**2**
Value Added Course									
23UGLI070	**VAC 2:** Introduction to SDG (online)	-	-	-	-	Evaluation by Remarks			1
	Total (VAC)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**
	Total	**15**	**-**	**16**	**-**	**280**	**420**	**700**	**24**
		31				**700**			

*Students can opt for any three subjects from above four subjects i.e. Chemistry, Physics, Mathematics, and Industrial Chemistry with their practical.

After successful completion of semester-1 & 2 they have choice to select Major or Minor courses