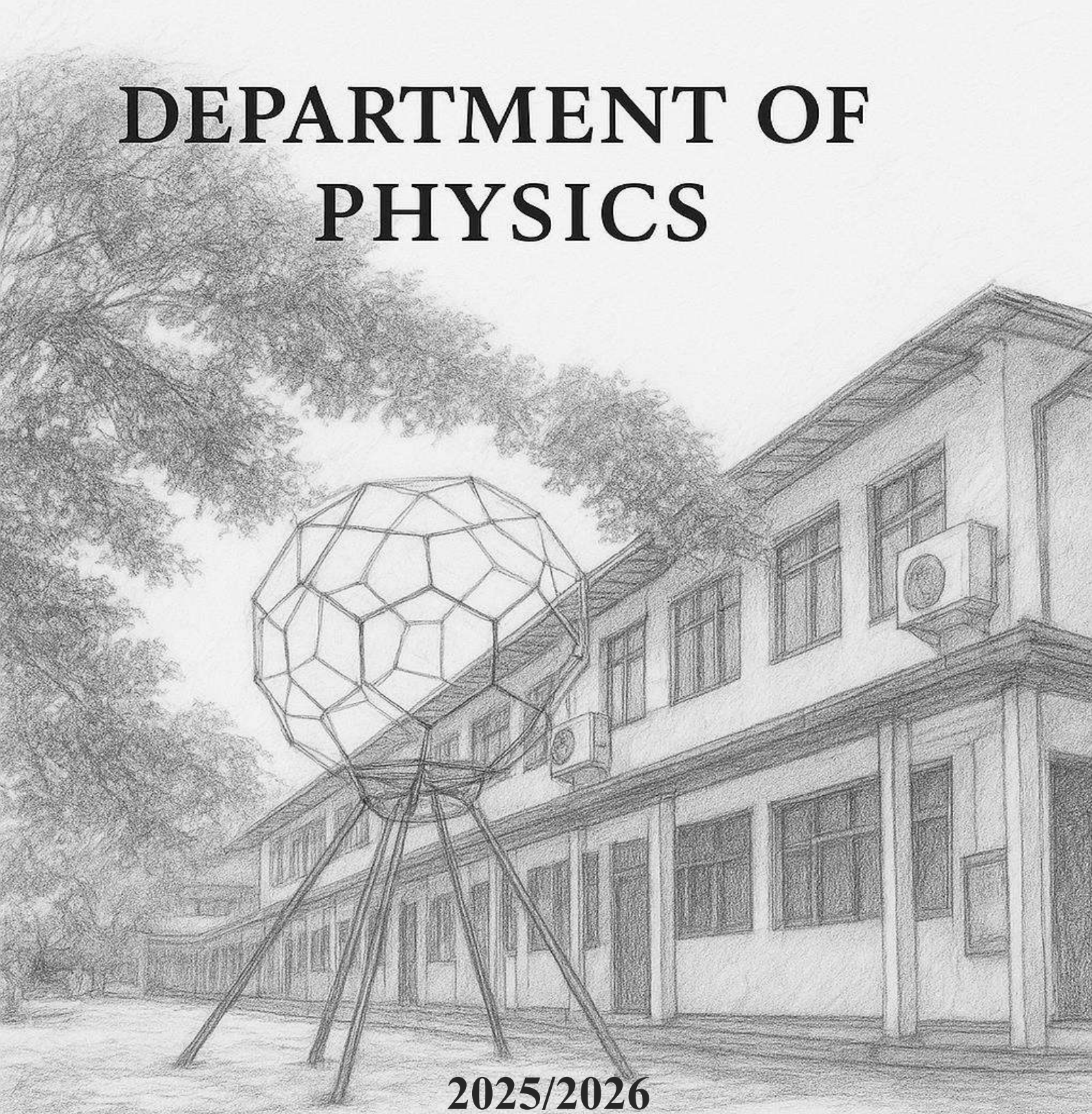
DEPARTMENT OF PHYSICS



2025/2026

STUDENT HANDBOOK

UNIVERSITY OF SRI JAYEWARDENEPURA

WELCOME TO THE DEPARTMENT OF PHYSICS

We invite you to obtain the maximum use of the facilities available for you to achieve your academic goals.

This handbook provides information on the undergraduate and postgraduate programs offered by the Department of Physics, University of Sri Jayewardenepura. It also outlines the department's areas of expertise, available resources, and facilities that support students in their academic journey. Additionally, it serves as a guide to help you select the course modules and projects required for your graduation.

We wish you a successful and fulfilling experience at the University throughout your period of study.

- Head and the staff of the Department

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MESSAGE FROM THE HEAD OF THE DEPARTMENT

Dear Students,

Welcome to the Department of Physics at the University of Sri Jayewardenepura! It is my great pleasure to serve as the Head of this vibrant department, where we explore the fundamental principles of nature and their applications to real-world challenges.

Our programs are designed to give you a strong foundation in physics while offering hands-on experience through active research and experimentation. You will have the opportunity to work alongside a dedicated team of faculty members who are passionate about teaching, discovery, and guiding you toward academic and personal growth.

I encourage you to make the most of the facilities and opportunities available in our modern laboratories, research initiatives, internships, and extracurricular programs all aim to enrich your learning experience. Your time here is an investment in your future, and I am confident that the knowledge and skills you gain will prepare you for success in physics and beyond.

Please do not hesitate to reach out to me or any member of our academic staff for advice, guidance, or support. We are committed to helping you reach your goals and ensuring that your journey with the Department of Physics is both rewarding and inspiring.

Sincerely,

Prof. W K I L Wanniarachchi
Head, Department of Physics
Faculty of Applied Sciences
University of Sri Jayewardenepura
Gangodawila, Nugegoda.

THE DEPARTMENT OF PHYSICS – HISTORY & EVOLUTION

The Department of Physics of the University of Sri Jayewardenepura has a history of more than five decades. The founding professor, Prof. P. C. B. Fernando, joined the university in 1967 and laid the foundation for both teaching and research in physics. Today, the Department is among the largest in the Faculty of Applied Sciences, in terms of student numbers. It occupies two spacious two-story buildings that house lecture theatres, lecture halls, and research laboratories. In line with the mission of the University and the Faculty, the Department of Physics is committed to providing students with a high-quality learning experience through a series of course units that cover both the traditional foundations of physics as well as exciting recent developments.

The Department has steadily expanded its physical and technological infrastructure, including:

- Main lecture theatre with 170-seat capacity
- Computer laboratories with seating for 60 students per session
- A Smart Classroom with a 50-student capacity
- Several mini lecture halls
- Well-equipped teaching and research laboratories, including advanced facilities for materials physics, electronics, computational physics, and optics

Undergraduate programs include B.Sc. degree (3 year) with Physics as a subject and B.Sc. Honours Degree (2 year + 2 year) in Physics (Physics specialization) and subject combinations within the Faculty of Applied Sciences. The Electronics and Embedded Systems subject stream (B.Sc. degree (3 year) with Electronics and Embedded Systems as a subject), introduced in 2018, has since developed into a modern specialization supported by laboratories in robotics, automation, computer vision, embedded systems, and instrumentation. Furthermore, the Department offers B.Sc. Honours degrees in Applied Sciences (Physics) and Applied Sciences (Electronics and Embedded Systems), each structured as a 3+1 year program.

The Department also offers postgraduate programs leading to M.Sc., M.Phil., and Ph.D. degrees, strengthening both applied and fundamental research.

The Department of Physics is proud of its student achievements. Our graduates have gone on to pursue successful careers as university academics, scientists, innovators, entrepreneurs, administrators, managers, and teachers, contributing significantly to the advancement of knowledge, innovation, productivity, and the economic growth of the nation.

AVAILABLE SUBJECT COMBINATIONS – PHY AND EES

Combination No.	Combinations available for **Physical Science** Students
P01	Physics, Mathematics, Chemistry
P03	Physics, Mathematics, Statistics
P05	Physics, Mathematics, Management Science
P07	Physics, Mathematics, Computer Science
P13	Physics, Mathematics, Electronic and Embedded Systems

Combination No.	Combinations available for **Biological Science** Students
B01	Physics, Chemistry, Zoology

Combination No.	Combinations available for **Biological Science/Physical Science** Students
C02	Physics, Chemistry, Polymer Science

Combination No.	Combinations available for students who have sat for **Combined Mathematics, Physics and ICT**
I01	Physics, Mathematics, ICT
I02	Physics, Electronic and Embedded Systems, Mathematics

PHYSICS AS A SUBJECT...

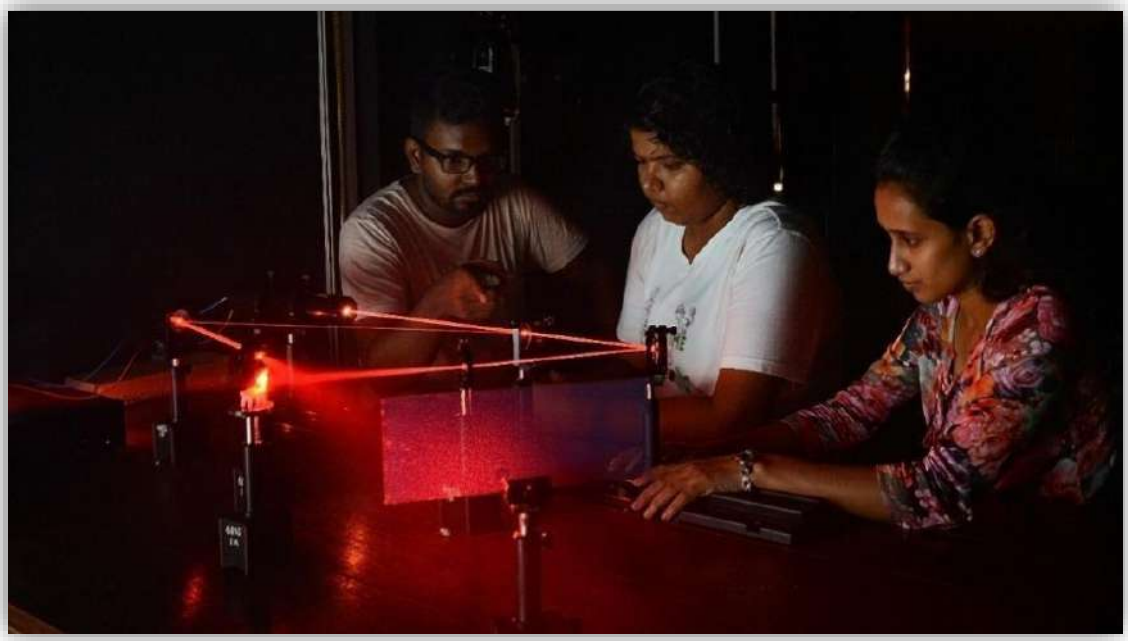
"Physics is a creative activity of human mind. Studying Physics provides you with a delightful and a rewarding experience that will make you suitable for any future career"

The Department of Physics at the University of Sri Jayewardenepura offers courses that integrate both the foundational knowledge and the recent advances of the field, thereby ensuring students gain knowledge across the breadth of the discipline. Additionally, optional courses are offered in specialized subject areas that enable students to follow the industrial aspects of physics. Not limited to the technical know-how of the field, students are also offered optional courses to help develop their soft skills such as presentation, communication, and organizational skills.

Hands-on learning is offered through the various laboratories in the department. These include an Elementary Laboratory, Optics Laboratory, Electronics Laboratory, Applied Physics Laboratory, Embedded Systems and Robotics Laboratory, Computational Laboratory, and Advanced Physics Laboratory. The department also has a workshop equipped with machinery and instruments.

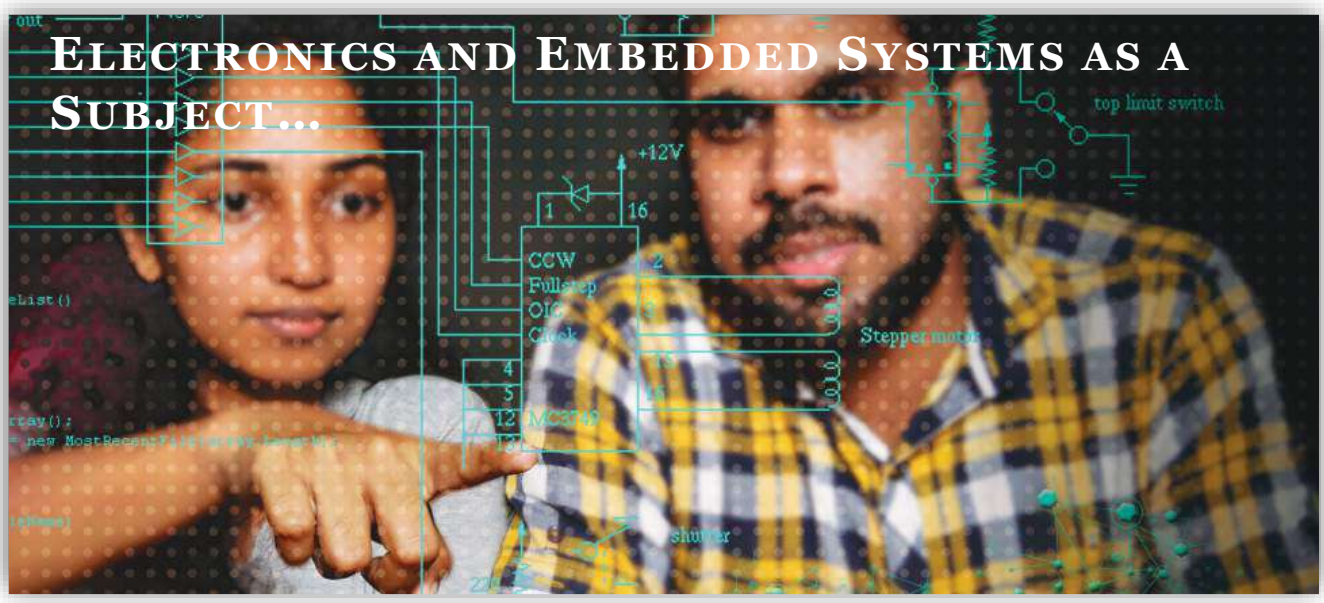
Honours Degree students are provided with the opportunity to apply their knowledge and gain industrial experience through an Industrial Placement scheme. Previous industrial placements include ITI, Atomic Energy Authority, ACCIMT, SLSI, Petroleum Resources Development Agency, and CEA. The final year projects offered for Honours Degree students strengthen students' research and analytical skills while broadening their expertise in specialized areas in physics. Further, the department of physics facilitates postgraduate-level research (both M.Phil. and Ph.D.) mainly concentrated on Geophysics, Digital electronics, and Condensed matter physics for the advancement of science and technology fields in the country. Moreover, to enforce the physics educational sector with a sound conceptual understanding of the subject and teaching methodologies, we offer M. Sc. Degree in Physics Education for graduates working in academic fields.

Why Study Physics?



Physics is the study of matter, energy, and the interaction between them. It helps us understand how the world around us works and has numerous real-world applications in fields such as engineering, technology, medicine, and environmental science. Studying physics develops critical thinking, problem-solving, and analytical skills, and provides a foundation for further studies in science and engineering. It also enhances our understanding of the natural world and the laws that govern it.

Students who major in physics or electronics and embedded systems are prepared to work on cutting-edge scientific and technological ideas in academia, government, or the private sector in a variety of fields such as electronics and embedded systems, material sciences, industrial physics, geophysics, and computational physics. The skills gained in analytical thinking, problem-solving, and experimental skills are valuable in a wide range of careers.



EES course is geared towards physical stream students interested in pursuing careers in Physics and Electronics and Embedded Systems. Consideration will be given to the students who are selected by the University Grant Commission (UGC). It is expected that Electronics and Embedded Systems combined with Physics and Mathematics provide an innovative combination in order to graduate with essential knowledge, specific expertise and skills related to national needs.

The majority of students who are completing the B.Sc. General degree tend to seek job opportunities in academia as well as in industry. Therefore, a general degree program which is focused on producing graduates with more practical knowledge will certainly be of high demand. Also, with the rapid development of technology, automation, internet of things, and robotics applications are integrated in to our lives in forms of telecommunication, health systems, entertainment, security, etc. Therefore, the emerging employment trends seek for graduates with knowledge in Electronics and Embedded Systems to develop automation, robotics and Internet of Things projects. The proposed Electronics and Embedded Systems course will be structured in a way that the students will gain knowledge in demanding fields thus opening new avenues of employment for science graduates.

Why Study EES?

Electronics and Embedded Systems program is structured to provide the prospective students a solid foundation of theory and practical in Physics, Electronics and Mathematics during their first two academic years. Therefore, the students to follow this undergraduate subject should select the combination containing Physics, Mathematics, and Electronics and Embedded Systems. The third year of study is emphasized more on the application of oriented courses, thus included course units in Embedded Electronics, Internet-of-Things (IOT), Robotics, Instrumentation and Automation.

The Electronics and Embedded Systems Course is designed as a three year degree course which will focus on laboratory practical sessions while covering undergraduate level Physics and Mathematics. The students are required to take course units in Electronics and Embedded Systems with a minimum cumulative credit value of 27.0 during the three years. The course units comprise of ‘compulsory’, ‘core’, ‘non-core’ and optional’ subjects so that the students are provided with the Electronics and Embedded Systems stream while allowing some level of flexibility to pursue optional interest.

Academic Advisors

Dr. (Mrs.) S. Kandeepan
Senior Lecturer

Dr. (Mrs). W. W. P. De Silva
Senior Lecturer

Meet Your Academic Advisors

Students are encouraged to meet their academic advisors regarding any academic matters. Academic advisors offer guidance on course selection, academic performance, research activities, and future career pathways. They serve as the primary contact point for academic support and ensure that students receive proper direction throughout their studies.

LMS Coordinator and EES Coordinator

Dr. R. A. D. D. Dharmasiri
Senior Lecturer

Criteria for selection into the Honors (Special) Degree in Physics

Candidates for Honours Degree in the Physics specialization area is selected at the end of the second year. Selection of candidates is based on the academic performance of the candidates during the first two years. In order to follow an Honours Degree programme in Physics, students should take a minimum of 20 credits for the Physics subject and should obtain a minimum GPA of 3.00 (published by the department) for the Physics subject and a minimum GPA of 2.00 for the each of the other two subjects. However, the number of selected students will depend on the facilities available in the Physics Department in respective year. [for more information/updates please refer the Degree Programs and Examination Regulations booklet provided by the FAS]

In order to complete an Honours Degree Programme, a candidate should register for course units with a minimum total credit value of 120 and a maximum of 126. This should include course units of 60 credits specified by the relevant Department in the third and fourth years. The cumulative credit value of all course units of the Specialization subject registered by a candidate during the four years should be at least 80.
For some subjects, some of the course units taught in the second year may be prerequisites for the BSc Honours Degree programme. Candidates who hope to follow BSc Honours Degree Programmes should, therefore, obtain guidance from the respective Heads of Department / Academic Advisors at the beginning of the second year.

Criteria for selection into the Honors Degree in Applied Sciences (Physics/ EES)

Students those who have completed their general degree with a minimum GPA of 2.5 (defined by the Faculty) at the end of their third year B.Sc programme are eligible to apply for the BSc. Honors in Applied Sciences. At the end of the third year, students who have obtained the degree program are required to state their preferences with respect to the field of study if they desire to continue on. Additionally, applicants should have done the compulsory English course unit examinations conducted by the faculty during the first three semesters and earned at least an average C grade for compulsory English in order to apply for the B.Sc. in Applied Sciences degree program. The students will be selected for the relevant fields solely by their GPA and they will be assigned an industrial training project considering the availability of resources in the respective field as decided by the program management committee (PMC).

Internship opportunities

All Honours Degree students in the Department of Physics are provided with opportunities to undertake internships in relevant fields within the private or government sector, both locally and internationally, subject to faculty approval. Students enrolled in the BSc Honours in Applied Sciences degree programme are required to complete a six-month internship during their final semester. Physics Special Degree students are required to complete a three-month internship at the end of their 3rd year. In addition to local and international industrial training opportunities, Physics students are eligible to apply for prestigious foreign training programmes such

as the CERN Student Summer Programme. In the past, several students from the Department of Physics have successfully secured placements and benefited from training at CERN.

Career Pathways for Physics Graduates

Physics graduates have a wide range of career pathways available to them. The strong problem-solving skills, analytical thinking, and ability to apply theoretical knowledge to practical situations gained through Physics and EES programmes provide a significant advantage over many other disciplines. As a result, Physics graduates are well prepared to pursue diverse career opportunities at both local and international levels across academia, industry, research, and emerging technology sectors.

- **Academic Lecturer / Researcher** – Teaching and research in universities and institutes
- **Engineer / Technical Specialist** – Electronics, energy, instrumentation, manufacturing
- **Data Scientist / Software Professional** – Data analytics, AI, scientific computing
- **Entrepreneur / Startup Founder** – Technology-based and innovation-driven businesses
- **Research Officer / Government Sector** – National and international research organizations
- **International Research & Training Programmes (e.g., CERN)**

Programme Educational Objectives (PEOS)

- Understanding the fundamental concepts, laws, and principles of physics.
- Developing critical thinking, problem-solving, and analytical skills.
- Understanding the applications of physics in real-world problems and other fields such as engineering, technology, and medicine.
- Developing the ability to analyze, design, and conduct experiments to test physical theories and laws.
- Developing a strong foundation for further studies in science, engineering, and related fields.
- Enhancing the ability to communicate scientific ideas and results effectively, both in written and verbal forms.
- Developing a deep appreciation for the beauty and elegance of physical laws and the natural world.

PROGRAM LEARNING OUTCOMES (PLOS)

Common PLOs had been developed for the B.Sc. General Degree and B.Sc. (Special) Degree in the Faculty of Applied Sciences since this subject is offered in combination with two others from the Faculty for the General Degree and students are selected at the end of the 2nd year for the special degree. The PLOs thus developed are as follows;

B.Sc. Degree Program

Upon successful completion of the B.Sc. degree programme of the USJ, every graduate will be able to,

1. Demonstrate knowledge and understanding of underlying concepts of respective subject areas.
2. Demonstrate competency in practical/technical knowledge and skills for enquiry and application.
3. Enhance clear and coherent communication skills for demonstration of knowledge and skills.
4. Enhance adaptability and emotional intelligence through teamwork which leads to improved leadership qualities, respect for diverse points of view and empathy.
5. Develop cognitive and creative skills to identify, collect, analyze and interpret qualitative and quantitative data.
6. Acquire personal integrity through accountability and assuming responsibility.
7. Demonstrate positive and healthy attitudes and values and engage in lifelong learning for the betterment of society.

B.Sc. Honours Degree Program

Upon successful completion of the B.Sc. Honours degree programme of the USJ, a graduate will be able to,

1. Demonstrate advanced knowledge and understanding of underlying concepts of respective subject areas.
2. Acquire high levels of competence in practical/technical knowledge and skills for professional growth.
3. Enhance ability to communicate acquired knowledge, information, ideas and solutions with clarity and coherence.

4. Enhance emotional intelligence through social engagement, networking and teamwork which leads to improved leadership qualities, respect for diverse points of view and empathy and develop strategies to adapt to changing circumstances.

5. Develop cognitive and creative skills in identifying, collecting and critically analyzing data and in solving problems independently.

6. Exercise personal integrity through responsibility and accountability and acquire professional integrity through inculcated entrepreneurial, managerial and time-management skills.

7. Demonstrate positive and healthy attitudes and values and engage in lifelong learning for the betterment of society.

ACADEMIC PROGRAM

B. Sc. Degree with Physics as a Subject and B. Sc. Honours degree in Physics

Physics is offered as one third of General Degree in B.Sc. by the Faculty of Applied Sciences. The duration of the B.Sc. Degree is three years and those who have selected to follow Honours degree in Physics after the first two academic years based on merit, have total of four years including an industrial training program and a one year research project. The industrial training is intended to provide undergraduates with exposure to applying the theoretical knowledge in practice. The comprehensive research project needs to be submitted as a report and defended in a viva voce examination. The total number of credits required to achieve this is 120, and the minimum credit requirement for each semester is given below.

	Credits for GPA***		Total Credits	
Semester**1	04		04	
Semester 2	06		06	
Semester 3	04		04	
Semester 4	06		06	
Total	**20**		**20**	
	B.Sc.	B.Sc. Honors	B.Sc.	B.Sc. Honors
Semester 5	04	12	04	15
Semester 6	06	18	06	15
Semester 7	-	12	-	09

Internship	-	03	-	03
Research Project	-	08	-	08
Semester 8	-	18	-	10
Total	**10**	**60**	**10**	**60**
Final Credit Value	**30**	**80**	**30**	**80**

** A credit is equivalent to 15 hours of lectures. One credit is considered equivalent to 50 notional learning hours for a course including teaching, laboratory work and field work. In the case of research and industrial training one credit is equivalent to 100 notional hours (The notional learning hours include direct contact hours with teachers and trainers, time spent in self-learning, preparation for assignments, carrying out assignments and assessments)*

*** A Semester generally consists of twenty-two weeks including fifteen weeks of academic work, four weeks for examinations and two weeks of vacation. *** GPA stands for Grade Point Average*

Curriculum

Module Code	Module Name	Category	Credits
First Year – Semester I			
PHY 1011	Fundamentals of Electronics (Unaudited Unit)	o	1.0
PHY 1022	Mathematics for Bio Science Students – Semester I and II (Unaudited Unit)	o	2.0
PHY 1032	Mechanics and Properties of Matter	c	2.0
PHY 1041	Electricity and Magnetism	c	1.0
PHY 1051	Waves and Vibrations	c	1.0
PHY 1062	Practical (Elementary) – Semester I and II	a	2.0
	Total for Semester I		4.0
First Year – Semester II			
PHY 1022	Mathematics for Bio Science Students – Semester I and II (Unaudited Unit)	o	2.0
PHY 1072	Analog and Digital Electronics	c,n	2.0
PHY 1081	Special Theory of Relativity	c,n	1.0
PHY 1091	Atomic Physics	c	1.0
PHY 1062	Practical (Elementary) – Semester I and II	a	2.0
	Total for Semester II		6.0
Second Year – Semester I			
PHY 2012	Optics	c	2.0
PHY 2022	Applied Electricity	c	2.0

PHY 2031	Practical (Optics) – Semester I and II	a	1.0
PHY 2041	Practical (Electronics) – Semester I and II	a	1.0
		Total for Semester I	4.0
Second Year – Semester II			
PHY 2051	Statistical Physics I	c	1.0
PHY 2061	Mathematical Physics I	c	1.0
PHY 2072	Thermodynamics	c	2.0
PHY 2031	Practical (Optics) – Semester I and II	a	1.0
PHY 2041	Practical (Electronics) – Semester I and II	a	1.0
		Total for Semester II	6.0

Third Year – Semester I			
PHY 3011	Electromagnetic Theory I	c	1.0
PHY 3021	Quantum Mechanics I	c	1.0
PHY 3031	Practical (Applied) – Semester I and II	a	1.0
PHY 3041	Practical (Computational) – Semester I and II	a	1.0
PHY 3061	Geophysics I	o	1.0
PHY 3071	Solid State Physics I	o	1.0
PHY 3081	Sensors and Measurement Techniques	o	1.0
PHY 3092	Group Project – Semester I and II	o	2.0
		Total for Semester I	4.0
Third Year – Semester II			
PHY 3051	Microprocessors and Embedded Systems	c,#	1.0
PHY 3031	Practical (Applied) – Semester I and II	a	1.0
PHY 3041	Practical (Computational) – Semester I and II	a	1.0
PHY 3101	Space Physics	s	1.0
PHY 3111	Computer Hardware & Networking	o	1.0
PHY 3121	Industrial Physics	s	1.0
PHY 3131	Astronomy	s	1.0
PHY 3141	Metrology	o	1.0
PHY 3151	Nanophysics I	o	1.0
PHY 3161	Physics Education	o	1.0
PHY 3171	Medical Physics	o	1.0
PHY 3181	Biophysics	o	1.0

PHY 3191	Nuclear and Particle Physics	o	1.0
		Total for Semester II	6.0

c- core, n- optional for those who are not doing physics, a – compulsory, o-optional for those who are doing physics, s-optional for all students in the faculty
-#-Those who are doing Electronics & Embedded Systems as a subject must take PHY 3111 Computer Hardware and Networking instead of PHY 3051 Microprocessors and Embedded Systems.

B.Sc. Honours Degree Course Units			
Third Year – Semester I			
PHY 3011	Electromagnetic Theory I	c	1.0
PHY 3021	Quantum Mechanics	c	1.0
PHY 3031	Practical (Applied) -Semester I&II	a	1.0
PHY 3041	Practical (Computational)-Semester I&II	a	1.0
PHY 3061	Geophysics I	c	1.0
PHY 3071	Solid State Physics I	c	1.0
PHY 3081	Sensors and Measurement Techniques	o	1.0

PHY 3512	Mathematical Physics II	c	2.0
PHY 3522	Nuclear Physics	c	2.0
PHY 3532	Telecommunication	c	2.0
PHY 3542	Seminar	c	2.0
PHY 3554	Practical (Advanced)-Semester I&II	a	4.0
PHY 3581	Computational tools of Physics	o	1.0
		Total for Semester I	12.0
Third Year – Semester II			
PHY 3051	Microprocessors and Embedded Systems	c*	1.0
PHY 3031	Practical (Applied) -Semester I&II	a	1.0
PHY 3041	Practical (Computational)-Semester I&II	a	1.0
PHY 3101	Space Physics	c	1.0
PHY 3111	Computer Hardware & Networking	o	1.0
PHY 3121	Industrial Physics	s	1.0
PHY 3131	Astronomy	s	1.0
PHY 3141	Metrology	o	1.0

PHY 3151	Nanophysics I	o	1.0
PHY 3161	Physics Education	o	1.0
PHY 3171	Medical Physics	o	1.0
PHY 3181	Biophysics	o	1.0
PHY 3562	Solid State Physics II	c	2.0
PHY 3572	Geophysics II	c	2.0
PHY 3602	Workshop Technology	c	2.0
PHY 3554	Practical (Advanced)-Semester I&II	a	4.0
	Total for Semester II		18.0
Fourth Year – Semester I			
PHY 4522	Statistical Physics II	c	2.0
PHY 4532	Microprocessor and Computer Interfacing	o⊥	2.0
PHY 4548	Project – Semester I&II	c	8.0
PHY 4553	Internship	c	3.0
PHY 4572	Particle Physics and Instrumentation	c	2.0
PHY 4623	Classical Mechanics	c	3.0
PHY 4631	Nanophysics II	o	1.0
PHY 4642	Computer Integrated Control Systems	o	
	Total for Semester I		12.0
Fourth Year – Semester II			
PHY 4513	Electromagnetic Theory II	c	3.0
PHY 4563	Quantum Mechanics II	c	3.0
PHY 4582	Space and Atmospheric Physics	c	2.0
PHY 4592	Computational Techniques for Physics	c	2.0
PHY 4601	Mathematical Physics III	o	1.0
PHY 4548	Project – Semester I&II	c	8.0
	Total for Semester II		18.0

c- Core, a – Compulsory, o-Optional for those who are doing physics, s-optional for all students in the faculty

* - Students who followed EES subjects in their first and second years must take PHY 311.1 Computer Hardware & Networking instead of PHY 305.1 Microprocessors and Embedded Systems.

ɬ - Students who followed EES subjects in their first and second years must take PHY 464.2 Computer Integrated Control Systems instead of PHY 453.2 Microprocessors and Computer Interfacing.

B. Sc. degree with Electronics and Embedded Systems as a Subject

The Electronics & Embedded Systems Course is designed as a three-year degree course which will focus on laboratory practical sessions while covering undergraduate level Physics and Mathematics. The developed curriculum of the Electronics & Embedded Systems program is structured to provide the prospective students a solid foundation of theory and practical in Physics, Electronics, Programming and Mathematics during their first two academic years. Therefore, the students to follow this undergraduate subject should select the combination containing Physics, Mathematics, and Electronics & Embedded Systems. The third year of study is emphasized more on application oriented courses thus included course units in embedded electronics, internet-of-things (IoT), robotics, instrumentation, and automation. The students are required to take course units in Electronics & Embedded Systems with a minimum cumulative credit value of 27.0 during the three years.

	Credits for GPA***	Total Credits
Semester**1	05	05
Semester 2	05	05
Semester 3	05	05
Semester 4	05	05
Semester 5	05	05
Semester 6	05	05
Final Credit Value	**30**	**30**

** A credit is equivalent to 15 hours of lectures. One credit is considered equivalent to 50 notional learning hours for a course including teaching, laboratory work and field work. In the case of research and industrial training one credit is equivalent to 100 notional hours (The notional learning hours include direct contact hours with teachers and trainers, time spent in self-learning, preparation for assignments, carrying out assignments and assessments)*

*** A Semester generally consists of twenty-two weeks including fifteen weeks of academic work, four weeks for examinations and two weeks of vacation. *** GPA stands for Grade Point Average*

Curriculum

Module Code	Module Name	Category	Credits (GPA)
First Year – Semester I			
EES 1012	Introduction to Computer Programming	c	2.0
EES 1022	Fundamentals of 2D and 3D Computer-Aided Design	c	2.0
EES 1031	Electronics and Embedded Systems Lab	a	1.0
		Total for Semester I	5.0
First Year – Semester II			
EES 1041	Embedded Linux Systems	c	1.0
EES 1052	Probability and Statistics (based on STA 349 2.0 Introduction to Statistics)	c	2.0
EES 1061	Seminar	c	1.0
EES 1071	Circuit Simulations and Design Lab	a	1.0
		Total for Semester II	5.0
Second Year – Semester I			
EES 2012	Sensors and Actuators	c	2.0
EES 2022	Statistical Methods (based on STA 360 2.0 Statistical Methods)	c	2.0
EES 2031	Embedded Systems Mini Challenge	a	1.0
		Total for Semester I	5.0
Second Year – Semester II			
EES 2042	Microprocessors and Microcontrollers	c	2.0
EES 2052	Data Acquisition and Signal Processing	c	2.0
EES 2061	Data Acquisition and Signal Processing Lab	a	1.0
		Total for Semester II	5.0
Third Year – Semester I			
EES 3012	Computer Integrated Control Systems	c	2.0
EES 3021	Circuit Fault Diagnostics	c	1.0
EES 3031	Embedded Systems Development Lab	c	1.0
EES 3082	Project (Sem I & Sem II)	o	2.0

EES 3091	Introduction to Machine Learning	o	1.0
		Total for Semester I	5.0
Third Year – Semester II			
EES 3042	Introduction to Internet of Things and Robotics	c	2.0
EES 3051	Internet of Things and Robotics Lab	a	1.0
EES 3061	Programmable Logic Controllers and Applications	o	1.0
EES 3071	Mobile Application Development	o	1.0
EES 3082	Project (Sem 1 & 2)	o	2.0
EES 3101	Electrical Machines	o	1.0
		Total for Semester II	5.0

a- compulsory, **c-** core, **n-** optional for those not doing Electronics & Embedded Systems, **o-** optional for those doing Electronics & Embedded Systems, **s-** optional for all students in the faculty.
Note: Those who are doing Electronics and Embedded Systems as a subject must take PHY 3111 Computer Hardware and Networking course instead of PHY 3051 Microprocessors and Embedded Systems

B. Sc. Honours degree in Applied Sciences

This four-year degree program is for students who have entered the Faculty of Applied Sciences through Physical, Biological, or Polymer Science stream and completed their general degree with a minimum GPA of 2.5 at the end of their third-year B.Sc. program. The students will be selected for the relevant fields solely by their GPA calculated with course units offered in five semesters (until third year first semester) of the general degree program.

Curriculum

Module Code	Module Name	Category	Credits (GPA)
Fourth Year – B. Sc. Honours in Applied Science in Physics			
ASP 441 2.0	Physics of Ceramic and Glass	o	2.0
ASP 442 2.0	Applied Geophysics	o	2.0
ASP 443 1.0	Computational Physics in Advanced Programming	o	1.0
ASP 444 1.0	Physics of Agricultural Materials	o	1.0
ASP 445 1.0	Philosophy of Science	o	1.0
ASP 446 1.0	Fundamentals of Digital Signal Processing	o	1.0

ASP 447 1.0	Advanced Nanophysics	o	1.0
ASP 447 1.0	Advanced Nanophysics (based on PHY 463 1.0 Nanophysics II)	o	1.0
ASP 448 2.0	Nuclear Physics (based on PHY 358 2.0 Nuclear Physics II)	o	2.0
ASP 449 1.0	Digital Image Processing	o	1.0
ASP 486 1.0	Reflection Seismology	o	1.0
ASP 487 2.0	Telecommunication	o	2.0
ASP 488 1.0	Device Physics	o	1.0
	Total		14.0
Fourth Year – B. Sc. Honours in Applied Science in Electronics and Embedded Systems			
ASP 481 2.0	System on Chip	o	2.0
ASP 482 2.0	Embedded Machine Learning	o	2.0
ASP 483 2.0	Advanced Programmable Logic Controllers	o	2.0
ASP 484 2.0	Image Processing and Embedded Computer Vision	o	2.0
	Total		8.0

TEACHING AND RESEARCH LABORATORIES OF THE PHYSICS DEPARTMENT

The Department of Physics consists of a range of laboratory facilities, from general teaching laboratories to state-of-the-art specialized laboratories, supporting approximately **800 students annually**.

Physics Subject-Related Laboratories

- Elementary Physics Laboratory (1st year)
- Optics Laboratory (2nd year)
- Electronics Laboratory (2nd year)
- Computational Physics Laboratory (3rd year)
- Applied Physics Laboratory (3rd year)

For Honors Physics students, Advanced Practicals are conducted in the **Advanced Physics Laboratory (3rd year)**.

Electronics and Embedded Systems (EES) Stream Laboratories

Each semester includes a dedicated practical course with specialized laboratory facilities:

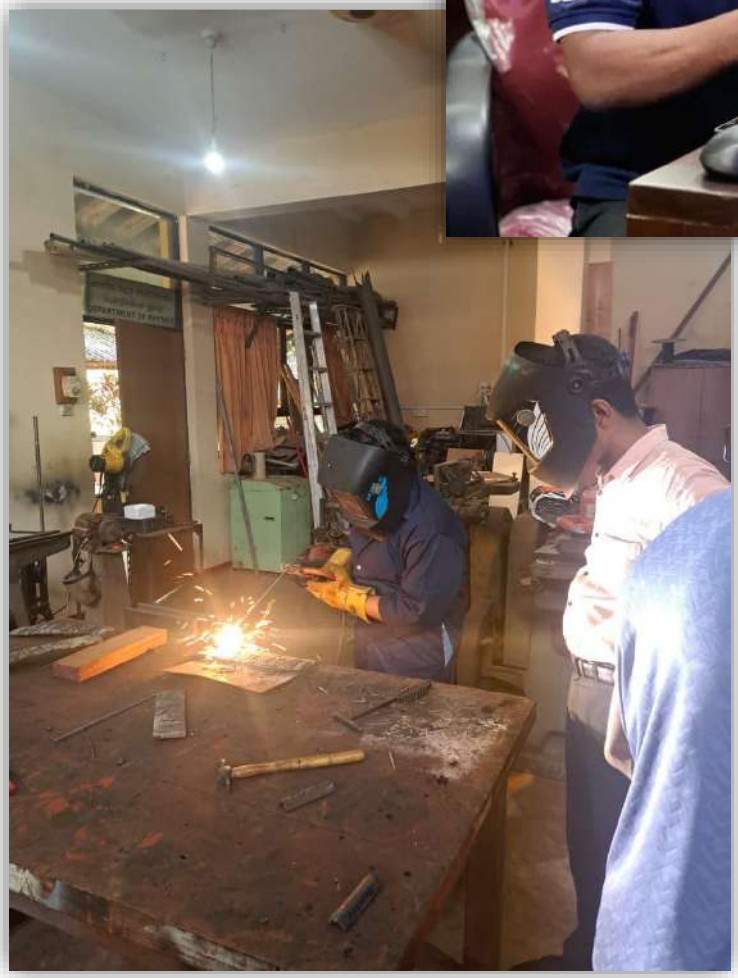
- Electronics and Embedded Systems Laboratory (Semester 1)
- 2D and 3D Design Laboratory (Semester 1)
- Circuit Simulation and Design Laboratory (Semester 2)
- Mini challenge – mechanical workshop (Semester 3)
- Data Acquisition and Signal Processing Laboratory (Semester 4)
- Embedded System Development and Automation Laboratory (Semester 5)
- Internet of Things and Robotics Laboratory (Semester 6)

Mechanical Workshop Facilities

The Department also operates a **Mechanical Workshop** that provides essential technical support for undergraduate and postgraduate research and development activities.

Postgraduate Research Facilities

Further, for postgraduate students (MPhil and PhD), the Department operates two specialized laboratories—the **Materials Physics Laboratory** and the **Applied Physics Laboratory**—**equipped with advanced instrumentation to support high-level research.**



FAS Open Day

Each year, the Faculty of Applied Sciences organizes an Open Day for the new student intake to explore available subject combinations. During this event, students can visit each department and interact with the academic staff. This provides an opportunity for them to learn more about the subject combinations offered and make an informed decision on the most suitable combination based on their interests and future expectations.

Academic Standards and Administrative Procedures

At the beginning of each semester, the students must:

- Enroll in appropriate subjects through LMS for each semester, according to the credit requirement stipulated in the curriculum. The students have to check; - Pre-requisites.
  - Departmental GPA credit requirement of the subject stream.
  - Non-Departmental GPA credit requirement.
  - Non-GPA credit requirement.
- Verify the accuracy of initial student registration details published on the departmental notice board.
- Add/drop subjects within 2 weeks from the commencement of each semester and finalize the subject selection for a particular semester.
- Collect previous semester result sheets from the examinations division website – pes.sci.sjp.ac.lk.

Academic Awards

Professor P. C. B. Fernando Gold Medal

The Prof. P. C. B. Fernando Gold Medal is awarded annually to the graduand who obtains a First Class Honours with the highest GPA for all Physics course units at the B. Sc. (Honours) Degree examination in Physics.

Nilusha Perera
Batch 2006/2007

Ravi Wickramathilake
Batch 2007/2008

Vibodha Yasas Sri Bandara
Batch 2008/2009

Neranga Prasadi
Batch 2009/2010

Lahiru Jayasooriya
Batch 2010/2011

Nimantha Perera
Batch 2011/2012

Chamini Pathiraja
Batch 2012/2013

Maheshi Malwathumulla
Batch 2013/2014

Channa Hatharasinghe
Batch 2014/2015

Nimna Peiris
Batch 2016/2017

Lakshitha Fernando
Batch 2017/2018

Department Curriculum Revision Meeting
7th & 8th March 2025

The primary objective of the meeting was to review and enhance the existing Physics (PHY) and Electronics & Embedded Systems (EES) subject fields, ensuring they align with modern educational and industry standards. The meeting was attended by faculty members, with some participating in person and others joining via Zoom. Discussions focused on curriculum improvements, new course structures, and innovative teaching methodologies. Key areas of emphasis included modernizing course content, integrating emerging technologies, and introducing new specialized degree programs to meet the evolving demands of the field.

STUDENTS' ACHIEVEMENTS

International Conference of Multidisciplinary Approaches – iCMA 2025

We are delighted to share the outstanding achievement of our PhD student Ms **W.A.Wijewickrama (Waruni)**, who won the **Second place** in poster presentation competition at the **11th International Conference on Multidisciplinary Approaches 2025**, organized by the Faculty of Graduate Studies, USJ held on 3rd April 2025. She was awarded this for the research carried out on **Growth and structural analysis of a heterostructure of CVD grown carbon nanotubes on Cuprous oxide which is grown by a boiling Cu plate in copper sulphate** in the **Engineering, Physical Sciences and Technological Innovation** category. This research presented a novel work in hybrid nanostructures. It is mainly focused on fabricating Carbon nanotubes using chemical vapor deposition method (CVD) and combine with cuprous oxide to build a heterostructure to use as an electrode, especially in fields like energy storage and electronic devices.

We are proud to celebrate the outstanding achievement of **Ms. D.A.D.D. Dissanayake (Dinithi)**, a 4th year student in our Physics Honours Degree Programme, whose research presentation made a remarkable impact at the **11th International Conference on Multidisciplinary Approaches 2025**, organized by the Faculty of Graduate Studies, USJ. Dinithi was awarded **First Place for her Oral Presentation in the Engineering, Physical Sciences and Technological Innovation category**. This award recognizes both the scientific merit of Dinithi and her team's work and the clarity and confidence with which she communicated their findings. Their project, titled ***"Development of an Experiment for Studying Radiation Effects on Groundnut Growth Under Microgravity",*** explored the frontier of space biology and radiation physics. With growing interest in sustainable life-support systems for long-term space missions, the team's research represents a timely and innovative contribution to interdisciplinary science.

The Sri Lanka Arduino Challenge 2025 - Team Voltron Crowned Champions

The Sri Lanka Arduino Challenge 2025, was organized by the SLTC IEEE Student Branch, IES Chapter, in collaboration with the IEEE Challenge Sphere Competition hosted by the IEEE Sri Lanka Section, under the theme of "Assisting people with disabilities". This year, the event was held on the 7th of August, at the SLTC Trace City Campus, and brought together some of the most promising innovators from universities across the country. While the Sri Lanka Arduino Challenge is known for pushing students to think outside the box, this year, Team Voltron emerged as champions amidst the fierce competition.

The three great minds behind Team Voltron, Nethum Vihansith, Chamidu Sachintha, and Thakshila Ellawala, are third-year Electronics and Embedded Systems (EES) students under the Department of Physics of the University of Sri Jayewardenepura, Sri Lanka.

11th Uni-In-Alliance Research Symposium 2025 – Best Presenter Awards

We are proud to announce that our students excelled at the **Uni-in-Alliance Symposium 2025**, held on **27th August 2025** at the University premises

Bimsara Alawathugoda
Theoretical and Applied Physics
Oral Session
"Comparative Analysis of V-I versus B-V Colour-Magnitude Diagrams of Globular Cluster NGC 1866"

Chamath Piyumal
Theoretical and Applied Physics
Oral Session
"Multiband Photometric Analysis of NGC 4147 Globular Cluster with HST Data to Determine the Age of the Cluster"

Ruvinagi Isurindi
Theoretical and Applied Physics
Poster Session
"Development of an Automated Real-Time Temperature Profiling System for Dryers in the Apparel Industry"

Kushani Silva
Theoretical and Applied Physics
Poster Session
"Temporal Analysis of Temperature in the Sinharaja Rainforest Using MODIS Satellite Data"

Sameera Pasan
Information Technology and Computing
Oral Session
"Real-Time Defect and Colour Quality Monitoring System for Apparel Manufacturing in Sri Lanka"

Yeshani Kumarage
Engineering, Technological Science, and Innovation
Poster Session
"Forecast-Driven Crop Planning and Distribution Platform for Sri Lanka"

Jithmi Nanayakkara
Engineering, Technological Science, and Innovation
Oral Session
"Anomaly detection, bottlenecks identification and process optimization in apparel manufacturing via sensor based system/ IOT and machine learning"

Recognition of Ms. K.D. Yeshani Niwarthana's Final-Year Research Contribution to SLT-Mobitel's Award-Winning Project AgroPulse

We are proud to recognize Ms. K.D. Yeshani Niwarthana, a graduate of the BSc. (Hons) in Applied Sciences (Physics) degree program, who worked as part of the development team at SLT-Mobitel, Sri Lanka's national ICT solutions provider.
AgroPulse – Sri Lanka's Intelligent Agricultural Planning and Distribution Platform is an industry innovation conceptualized and led by Mr. Thisara N. Herath and developed by the talented team at SLT-Mobitel. As part of her final-year research project, Yeshani had the opportunity to contribute to the development team through her work titled "Forecast-Driven Crop Planning and Distribution Platform for Sri Lanka."

The research was carried out under the academic supervision of Dr. G.W.C. Wijesundara from our Department, with mentorship and guidance from the SLT-Mobitel team. We are pleased to share that AgroPulse, developed by SLT-Mobitel, received the following honors at the SLASSCOM National Ingenuity Awards 2025:

- National Winner – Best Innovative Product (Agritech)
- Western Province Winner – Best Innovative Product (Agritech)

For Ms. Yeshani Niwarthana, being part of this success was an invaluable opportunity to gain hands-on industry experience and contribute meaningfully to a nationally significant project. SLT-Mobitel, as a leader in Sri Lanka's telecommunications and digital innovation sectors, continues to provide students and graduates with unique opportunities to work with cutting-edge technologies and engage in projects that drive the nation forward. We extend our heartfelt congratulations to Ms. K.D. Yeshani Niwarthana, the AgroPulse Team, and SLT-Mobitel on this outstanding achievement.

Double Victory for the Department of Physics at SLAAS Three-Minute Video Competition

We are delighted to share the outstanding achievements of our Physics Special Batch (21/22) undergraduates at the prestigious SLAAS Three-Minute Video Competition Awards, held during the 81st SLAAS Annual Sessions at the BMICH on December 7, 2025

🥇 1st Place: “How birds use physics to find their way”
Team: Gihan Rashmika, Buhuni Biseka, and Jayodya Vinsadi

🥉 3rd Place: “Time Dilation”
Team: Sachintha Senanayake, Amasha Bodahewa, and Yethmi Peiris

Congratulations to both teams for bringing honor to the University of Sri Jayewardenepura. Your creativity and dedication to the field of Physics are truly inspiring.

Organization of the Department

ACADEMIC STAFF MEMBERS

Prof. W. K. I. L. Wanniarachchi

Head of the Department/ Professor in Physics
B. Sc. (USJ.), M.Sc., Ph. D. (Wayne State. MI. USA)

Phone: 0112758358
Email: *head.physics@sjp.ac.lk, iwanni@sjp.ac.lk*

Areas of Specialty & Research Interest:
Embedded Systems, Machine Vision, Computational Physics, Electronic Structure, Signal Processing

Prof. A.R. Kumarasinghe

Professor of Physics B.Sc., M.Phil. (Ruhuna), Ph.D. (Manchester)

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Areas of Specialty & Research Interests:
Graphene, CNT, Synchrotron Radiation, Nano solar cells, Surfaces and Interfaces

Prof. N. G. S. Shantha Gamage

B.Sc.(USJ), M.Sc., Ph.D.(Tohoku), CPhys, FIP(SL).

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Email: *sng@sjp.ac.lk*

Areas of Specialty & Research Interest:
Geophysics, Seismology, Computational Physics,
Wave Propagation, Studying Inland & offshore Earthquakes

Prof. P. K. D. Duleepa P Pitigala

Professor in Physics

B.Sc.; M.Phil. (USJ); M.Sc., Ph.D. (Georgia State)

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Email**:** dpitigala@sjp.ac.lk

Areas of Specialty & Research Interests:

Organic/inorganic semiconductor materials and thin films, Optoelectronic devices solar energy conversion and energy storage; nanostructures and nanomaterials

Prof. M. L. C. Attygalle

Professor in Physics

B.Sc. (Col.), Ph.D. (Toledo)

Phone: 0112758889

Email: latiyagala@sci.sjp.ac.lk

Areas of Specialty & Research Interests:

Theoretical modeling of photovoltaic junctions, condensed matter physics, Material science, Theoretical physics, Teaching and Learning methods in Physics education

Prof. M. M. P. M. Fernando

Professor in Physics

B.Sc., Ph.D. (USJ)

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Email: pmadhuranga@sjp.ac.lk

Areas of Specialty & Research Interests:

Geophysics, Mathematical and Computational Physics, Theoretical Physics, Power Electronics, AC Theory, Space Physics, Physics of Music, Buddhist Philosophy

Dr.D.N.Jayawardane

Senior Lecturer B.Sc.(USJ), Ph.D.(Cambridge)

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Email: dnj@sjp.ac.lk

Areas of Specialty & Research Interests:
Electron Microscopy, Electron-Energy loss spectroscopy, Characterization of hard materials (Diamonds, etc), nanotechnology

Dr. (Mrs.) S. Kandeepan

Senior Lecturer
B. Sc., M.Sc.(Pera.), M.Sc. &
Ph.D.(UWO,Canada)
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Email: ssivayini@sjp.ac.lk

Areas of Specialty & Research Interests:
Computational Neuroscience, Generalized Ising model, Blood Oxygen Level Dependent Signals, Nanomaterials and Nanotechnology

Dr. (Mrs). W. W. P. De Silva

Senior Lecturer

B.Sc. (USJ), M.Sc., Ph.D. (Mississippi State)

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Email:
asanthidesilva@sjp.ac.lk

Areas of Specialty & Research Interests:
Superconductivity, strongly correlated electron systems, Computational Physics

Mr. C. H. Mannatunga

Senior Lecturer *(on study leave)*

B.Sc. (USJ), MPhil. (OUSL),Ph.D. (Japan – reading)

Phone: 0112758109

Email: chandimavc@sjp.ac.lk

Areas of Specialty & Research Interests:
Electrical power, Embedded system design

Dr. G. W. C. Wijayasundara

Senior Lecturer

B.Sc.(USJ), Pg. Dip (UoC), M.Sc.(USJ),Ph.D.(UST)

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Email: chithrani@sjp.ac.lk

Areas of Specialty & Research Interests:
Metrology

Dr. R. A. D. D. Dharmasiri

Senior Lecturer

B.Sc.(USJ), M.Sc., Ph.D. (UOC)

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Email: dhanu@sjp.ac.lk

Areas of Specialty & Research Interests:
Wireless Sensor networks, Embedded System Designing, FPGA – Development.

Dr. D. L. R. Dodangodage

Senior Lecturer

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Email: rdodangodage@sjp.ac.lk

Areas of Specialty & Research Interests:

Atmospheric Spectroscopy, High resolution IR spectroscopy, Aerosols, Upper troposphere lower stratosphere (UTLS), Atmospheric pollution, Trace gases, Quantum decoherence

Dr. (Mrs.) G. G. G. M. Nadeera Hemamali

Senior Lecturer

B.Sc. (USJ), M.Sc. (UOP), Ph.D. (Brunel, UK)

Phone: 0112758357

Email: nhemamali@sjp.ac.lk

Areas of Specialty & Research Interests:

Nuclear Physics: Radiation Detector Development, Environmental Radiation Monitoring, Food irradiation
Electronics, Computational Physics

Dr. P. A. Palamure

Senior Lecturer

B.Sc.(Pera.), M.Sc. & Ph.D. (Kentucky, USA)

Phone: 0112758357

Email: piyamure@sjp.ac.lk

Areas of Specialty & Research Interests:

Nuclear and Particle Physics, Computational Physics, Data-Driven Modelling, Scientific Machine Learning

Mr. K. S. Mannatunga
Lecturer
B.Sc.(USJ), M.Sc. (UOC)

Phone: 0112758363
Email: ksm@sjp.ac.lk

Areas of Specialty & Research Interests:

Embedded System Designing, Open-source platform programming, FPGA – Development. DSSCS - with P type semiconductors

EMERITUS PROFESSORS

Prof. P.C.B.Fernando
B.Sc. (Cey.), Ph.D. (Cantab.)
(Served the Department: 1967-1995)

Prof. D.A.Tantrigoda
B.Sc. (Cey.), M.Sc., Ph.D. (Durham)
(Served the Department: 1974-2015)

ACADEMIC STAFF MEMBERS

ACADEMIC SUPPORTING STAFF

Ms. D. A. D. D. Dissanayake
Ms. H. N. Edirisinghe
Ms. G. A. A. Perera
Mr. A. M. Musaraf
Mr. H. V. H. Chathuranga
Mr. L. S. D. Lekamge
Mr. H. A. P. S. De Silva
Mr. C. S. Wijesinghe
Mr. C. C. Liyanage
Mr. H. V. D. Hettiarachchi
Mr. T. I. K Peiris
Mr. D. N. U. Keshan
Ms. D. D. M. Manurangi
Ms. P. Thanoja
Mr. N. B. K. K. Nugawela
Ms. L. K. I. Silva

NON-ACADEMIC STAFF

Mr. O. K. D. M. Priyantha
Mr. U Weerathunga
Mr. R. W. P. Sanjeewa
Mrs. H. M. R. N. Amarathunga
Mr. U. V. V. P. Balasuriya
Miss. K. A. D. S. L. Jayawardhana
Mrs. P. N. C. M. Sikurajapathi
Mr. B. K. Chaminda
Mr. M. K. Gallage
Mr. J. K. D. H. G. Jayanetthi
Mr. R. D. Thushara
Mr. D. M. N. K. Dissanayake
Mr. B. M. C.J. Senevirathna
Mr. I. D. Palpola
Miss. H. J. P. D. Liyanga
Mr. W. A. D. T. P. M. Padmasiri

Engaging Student Societies at the Department of Physics

Student societies play a vital role in enriching the academic and professional growth of our undergraduates. They provide platforms for leadership development, teamwork, communication skills, and hands-on experience through events, workshops, and community outreach. These activities strengthen the department's visibility, foster a vibrant learning culture, and support students in shaping their future career paths.

At the Department of Physics, the *Physics Society* and *EES Society* are the main student bodies closely linked to departmental activities. In addition, both academic staff and students are actively involved—at administrative and operational levels—in the *Astronomy Club*, further expanding opportunities for scientific engagement and public outreach.

Here are some highlights from the Department's student societies throughout the year 2025.

PHYSICS SOCIETY

The Physics Society is attached to the Department of Physics and acts as the department's student society. The Physics Society of the University of Sri Jayewardenepura (USJP) was formed in 1994 under the able guidance of Professor P. C. B Fernando. Its membership is open to academics and the undergraduate community of the USJP who are interested in Physics and allied fields. The aims of establishing this society include promoting education, research, and advancing of knowledge related to Physics and allied fields among its members.

It is instrumental in organizing student-related activities to promote both curricular and extra-curricular events. The society aims to generate practical minds and bring out the best in its members, to suit the current world of physics.

Physics Society Highlights – 2025

Prof. P. C. B. Fernando Memorial Oration

Date: 23 January 2025

The Department of Physics hosted the Prof. P.C.B. Fernando Memorial Oration on January 23rd, honoring the legacy of its founder. The event's Chief Guest was Prof. D.A. Tantrigoda, a distinguished former chair professor of the Department, who delivered an insightful oration titled, "Law of the Sea and Maritime Boundary of Sri Lanka." The memorial was attended by esteemed guests, including members of Prof. Fernando's family, Senior Prof. Upul Subasinghe (Dean of the Faculty of Applied Sciences), as well as numerous academics and students. This oration not only commemorated the remarkable contributions of Prof. Fernando but also provided students and faculty with a valuable opportunity to gain knowledge, inspiration, and appreciation for the field of physics and its interdisciplinary connections.

Documentary Series and Movie Screening

The Physics Society organized a documentary screening and a movie screening to stimulate scientific curiosity and offer a creative learning experience. The documentary session showcased educational films highlighting physics concepts and their applications in modern technology, while the movie screening illustrated scientific ideas through engaging storytelling. Both sessions encouraged interactive discussion among students and helped them connect classroom theory to real-world applications. These events enhanced understanding, promoted critical thinking, and created a lively environment for collaborative learning.

Music Therapy Session

Date: 14 August 2025

The Department of Physics organized a guest lecture session on Music Therapy, conducted by Ms. Uthpala, focusing on relaxation, motivation, and therapeutic techniques through music. The session provided students with an opportunity to unwind and recharge in a calm and engaging environment, promoting mental well-being and stress relief. By combining music with mindfulness, the lecture encouraged participants to achieve a healthier balance between academic responsibilities and personal wellness, fostering emotional resilience and a positive outlook.

Physics Premier League (PPL 2025)

Date: 9 November 2025

The Physics Society organized the Physics Premier League (PPL 2025), a grand sports fiesta held at the University Ground, celebrating unity, collaboration, and healthy competition among Physics undergraduates, lecturers, and non-academic staff. The event provided an enjoyable platform for all participants to showcase their talents while fostering teamwork and camaraderie. Designed to strengthen the bonds within the Physics Society, PPL 2025 successfully combined athletic skill with community spirit, promoting a sense of belonging, mutual respect, and a shared celebration of both science and sportsmanship.

EES Society

The Society of Electronics and Embedded Systems was established in 2023 by Prof. Indika Wanniarachchi. This society aims to bring together students and professionals interested in the fields of electronics and embedded systems, providing a platform for knowledge sharing, collaboration, and innovation. By fostering a community of like-minded individuals, society seeks to promote the growth and development of these fields, encouraging members to engage in research, projects, and skill-building activities.

FB page https://web.facebook.com/ees.usjp

EES Society Highlights – 2025

EPL -2025

The year commenced with the EPL annual cricket match organized by the third-year students, in order to promote teamwork, camaraderie, and healthy competition among students.

Poson lantern

In the months of May/June, cultural traditions were upheld with the creation of a Poson lantern by the second-year students. Sri Lanka's rich cultural and religious heritage was celebrated through the creation and display of traditional lanterns, fostering unity and creativity within the department

Nanasaviya 1.0

The society further continued its strong commitment to community service through the Nanasaviya 1.0 charity project, led by the first-year students, who raised funds to provide essential school supplies to children in rural communities.

Field visit to GPV Lanka

Students were further exposed to industry environments during an insightful field visit to GPV Lanka, where they gained valuable knowledge on electronic component manufacturing processes and industrial exposure, enhancing their understanding of real-world engineering environments.

PLC and automation module

Students' technical skills were further enhanced through PLC laboratory sessions facilitated by third-year students who completed the PLC and automation module.

Astronomy Club

J'pure Astronomy Club unites over 1000 members at the University of Sri Jayewardenepura to explore astronomy and to make a good impact in society. Open to all undergraduates, we aim to inspire future scientists and promote a passion for astronomy, granting immense opportunities to our members.

Astronomy Club Highlights – 2025

Water Rocket Competition- Shuttle Masters

Water rocket competition, with a focus on the students at University of Sri Jayewardenepura to show up their talents, was one of the huge interactive types of events. This was organized by the Astronomy Club of University of Sri Jayewardenepura, where around 150 participants were present for the event.
It was held in the University grounds which was held from 3.00 P.M. onwards on the 19th of December 2024. The event was initially carried out a phase for the participants to create their own rockets and then the 2nd one was to fly the rockets. Certificates were awarded to the participants in the end and special cash prizes were given for the teams which won the titles for the ‘best design’ and the ‘farthest distance which traveled’.

SPERO Charity Project along with Solar Observation

The Spero Charity Project 2025, organized by the Astronomy Club of the University of Sri Jayewardenepura, was an educational and community outreach initiative aimed at empowering Ordinary Level (O/L) students of Gonigoda Maha Vidyalaya, Rideegama, Kurunegala. The project was successfully held on 3rd of March,2025.

The event was centered around solar observation, where students were given the unique opportunity to track sunspots and explore the mysteries of the Sun, bringing space a little closer to their world.
Following the solar observation, an engaging discussion on different types of telescopes was held, allowing students to gain insight into how astronomers uncover the secrets of the cosmos.

A Mathematics seminar was conducted by Mr. Lakmal and Ms. Sajani, alumni members of the Astronomy Club, to support GCSE O/L students in preparing for their upcoming exams. To guide students on their future academic journeys, a pathway after O/L session was led by Ms. Ishara, an Allied Health Science student and proud alumni of the school, offering valuable insights into education and career options after secondary school. A stress-relief session was conducted by Dr. Mrs. Kandeepan, equipping students with techniques to manage exam anxiety and stay motivated.

During the visit, Rs. 40,000 as a donation from two Physics USJP Alumni (Dr. Dulanjan Dharmasena and Dr. Anuradha Mahanama) from USA, was handed over under the advice of Prof. (Mrs.) MLC Attygalle to assist in the renovation of the school's science laboratories, ensuring better resources for hands-on learning.

Additionally, books donated by university students and staff contributed to the school library, enhancing students' access to knowledge. To encourage students in their academic pursuits, a motivational speech was delivered by Prof. Lilani Attygalle, inspiring them to continue their studies beyond O/L and A/L and explore the vast possibilities that education brings. This initiative was carried out not just to promote scientific learning but to ignite curiosity, ease students' challenges, and foster a vision for their future.

The Future of the Indian Ocean Shaped by Satellite Technology Lecture

J'pura Astronomy Club, in collaboration with the Indian Ocean Strategic Research Centre (IOSRC), had a guest lecture titled "The Future of the Indian Ocean is Being Shaped by Satellite Technology" at the Physics Lecture Hall, on 13th November 2025.

The session featured two distinguished speakers:- Ms. Dharshani Lahandapura, Attorney-at-Law and former Chairperson of MEPA, and Commodore (Retd) Pujitha Sugathadasa of the Sri Lanka Navy.

They explored the intersection of space technology and marine strategy, highlighting how satellite innovations are influencing the future of the Indian Ocean. The lecture offered unique insights into regional maritime security, environmental monitoring, and the growing role of satellite data in shaping global policy and sustainability efforts.

Distinguished Guest Lectures

We wish you all the very best in your studies. Make the fullest use of the opportunities, facilities, and guidance provided by the Department. Work hard, stay curious, and develop both your academic and personal strengths. As you grow in your chosen fields, always remember to be responsible, ethical, and compassionate individuals who contribute positively to society.

Note: The information presented in this handbook is intended to provide an overview of the subjects offered by the Department of Physics and the degree programmes conducted by the department. Students are required to refer relevant sources (FAS/USJ) for general guidance related to all degree programmes, including subject offerings, selection criteria, examination regulations, and other relevant university rules and regulations.

BSc Honors in Physics/Applied Sciences
BATCH – 2018/2019

Postgraduate Prospectus

The Department of Physics offers full programs of graduate study leading to M.Sc., M.Phil., and Ph.D. degrees in physics. These degree programs are designed to provide the student with broad knowledge and problem-solving skills that are needed to be a productive physicist in an academic, government, or industrial environment.

- **M.Sc. Degree in Physics Education**
  This program emphasizes both subject mastery and pedagogical expertise, preparing graduates to contribute to physics teaching and curriculum innovation. Students benefit from faculty-led research projects and may access departmental and external research grants to support their work.
- **M.Sc. in Applied Physics and Instrumentation (Under Review)**
- **M.Phil. and Ph.D.**
  Advanced research degrees provide opportunities for students to pursue independent investigations under the mentorship of academic staff. M.Phil. candidates are encouraged to apply for research grants and participate in interdisciplinary projects, enhancing their scholarly and professional development.

RESEARCH GRANTS AND OPPORTUNITIES

The Department of Physics actively supports postgraduate students through a variety of research grants and funded projects. Students pursuing the **M.Sc. in Physics Education** or **M.Phil. degrees** are encouraged to engage in collaborative research under the guidance of experienced academic staff.

- **Faculty-Supervised Research Projects**
  Students will have the opportunity to join ongoing departmental research initiatives in physics education, curriculum development, and applied physics. These projects often integrate pedagogical innovation with experimental and theoretical approaches, providing a strong foundation for academic and professional growth.
- **Grant Funding and Scholarships**
  Eligible students may apply for competitive research grants offered by national funding agencies, international collaborations, and university research councils. These grants are designed to support postgraduate research expenses, including laboratory work, field studies, and conference participation.
- **Interdisciplinary Research Opportunities**
  The department encourages cross-disciplinary projects, allowing students to collaborate with colleagues in education, engineering, and computational sciences. Such opportunities broaden the scope of research and enhance employability in diverse academic and industrial sectors.
- **Professional Development**
  Postgraduate researchers are supported in publishing their work in peer-reviewed journals, presenting at national and international conferences, and contributing to departmental seminars. These experiences strengthen academic profiles and prepare students for doctoral studies or careers in academia, government, and industry.

For further information
Please Contact

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