UNIVERSITY OF SRI JAYEWARDENEPURA

PROSPECTUS & STUDENT HANDBOOK FOR EXTERNAL DEGREES IN APPLIED SCIENCES

2026

FACULTY OF APPLIED SCIENCES

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Vision

Prosper lives through education

Mission

Develop globally competent citizens through our education for a sustainable future, drawing inspirations

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University of Sri Jayewardenepura

In 1883, the Venerable Hikkaduwe Sri Sumangala Thero established the Vidyodaya Pirivena at Maligakanda. The Pirivena was given university status by the Universities Act No. 45 of 1958 in 1959 and named Vidyodaya University of Ceylon. With this transformation, it was geographically shifted from Maligakanda to its present location at Gangodawila, Nugegoda. In 1978, the name was changed to the University of Sri Jayewardenepura with the establishment of Sri Jayewardenepura as the administrative capital of Sri Lanka. Today, USJ is one of the leading universities of the nation. It spreads over approximately 55 acres of land with an internal student population of about 16,000 and consisting of eleven faculties, namely, Humanities and Social Sciences, Applied Sciences, Management Studies and Commerce, Medical Sciences, Graduate Studies, Technology, Engineering, Allied Health Sciences, Dental Sciences, Urban and Aquatic Bioresources and Faculty of Computing.

Faculty of Applied Sciences

Established little more than half a century ago, the Faculty of Applied Sciences at the University of Sri Jayewardenepura stands as a beacon of innovation and excellence in academia. As the second oldest faculty of the university, the faculty has continuously strived to push the boundaries of conventional education, embracing new ideas and pioneering approaches to applied sciences.

Our journey began with a bold departure from tradition. Instead of adhering strictly to conventional norms, we charted a new course by replacing traditional Applied Mathematics with Statistics. Afterwards, we introduced an array of courses covering various applied aspects of Science, including Fisheries Biology, Forestry, Food Science, Polymer Science, Electronics, Geophysics and Sports Science. By opening the gates of Physics and Mathematics Departments to Bioscience students, we challenged conventional disciplinary boundaries and fostered interdisciplinary learning.

The impact of these innovations reverberates through time, as they have been emulated by many esteemed faculties of science across the country. This serves as a testament to the foresight and prudence of our approach, which aimed to tailor education to the needs of a developing nation like Sri Lanka.

In 1973, our efforts received official recognition when the Faculty of Science was converted into the first Faculty of Applied Sciences in the country, under the University of Ceylon Act No.1 of 1972. Since then, we have grown exponentially, evolving into the flagship institution of applied sciences in Sri Lanka.

Today, our faculty boasts eleven academic departments and a vibrant student population exceeding 2500 at a given time. Our esteemed faculty comprises nearly a hundred and fifty highly qualified academic staff, many of whom are renowned as leading scientists in their respective fields, getting recognition and honors from prestigious scientific bodies.

At the heart of our faculty lie a robust research-intensive culture and a commitment to postgraduate education. We offer more than ten M.Sc. courses, along with

several MPhil and PhD programs in specialized disciplines, administered by the Faculty of Graduate Studies.

In addition to academic pursuits, we prioritize hands-on learning experiences for our students. Through industrial placements, work shadowing, and field trips, we expose our students to the real-world applications of their studies, fostering a deeper understanding of work culture, ethics, and industry expectations.

We take immense pride in the achievements of our alumni, many of whom occupy prominent positions in academia, government institutions, and industry, contributing significantly to the nation's development.

For the first time in the history of Sri Lanka's government university system, we are proud to announce the introduction of a four-year external degree program in Polymer Products Manufacturing and Industrial Management. This milestone marks a significant turning point in the landscape of higher education, offering an affordable opportunity for students to obtain a degree in applied sciences equivalent to an internal degree. This pioneering initiative not only expands access

to quality education but also underscores our unwavering commitment to innovation and relevance in the field of applied sciences. In addition to the above degree BSc in Food Science and Technology degree will be introduced soon. As we welcome a new cohort of external students into the Faculty of Applied Sciences via External Degrees and Extensive Course Unit of the University of Sri Jayewardenepura, we remain unwavering in our commitment to excellence. We are confident that they will excel in their academic endeavors and emerge as proud graduates of the University of Sri Jayewardenepura, poised to make meaningful contributions to society and the world at large.

External Degrees and Extension Courses Unit (EDECU)

Established in 1979, the External Degrees and Extended Courses Unit (EDECU) of the University of Sri Jayewardenepura has been a pioneer in providing accessible higher education opportunities. It all began with the introduction of the External Degree Programme in Bachelor of Commerce, followed by the commencement of the Bachelor of Arts (General) External Degree Programme. In 1997, EDECU expanded its offerings with the introduction of External Degree programs in B. Sc. (General) in Business Administration and B. Sc. (General) in Public Administration. The latest milestone in EDECU's journey is the introduction of the BSc Honors in Polymer Products Manufacturing and Industrial Management degree program. Scheduled to commence in the second quarter of 2026, this program marks a significant addition to the EDECU's diverse portfolio. The introduction of the BSc Honors in Polymer Products Manufacturing and Industrial Management exemplifies EDECU's dedication to meeting evolving industry demands and providing students with the skills and knowledge needed for success in today's competitive job market.

EDECU is governed by the;

- Management Committee
- Board of Study of the Faculty of the Humanities and Social Sciences
- Board of Study of the Faculty of Management Studies and Commerce
- Board of Study of the Faculty of Applied Sciences

EDECU, overseen by a Director appointed by the University Council, comprises three key functional divisions: Evaluation and Training, Registrations and Examinations, and Learning Resources, each led by dedicated Academic Coordinators. Additionally, each degree program offered by EDECU is supported by Academic Coordinators from the respective departments. The Boards of Study of each Faculty provide oversight on the academic program and examinations of EDECU.

Special Attention for the External Degree Undergraduates

1. All the academic and administrative activities of the External Degree Programmes of University of Sri Jayewardenepura are conducted by the EDECU/USJ. There is no other institute related to or approved by the USJ in relation to External Degree Programmes of USJ. Therefore, USJ will not be responsible for the payment made to such institutions.
2. Appeals submitted by student who have followed the instructions given by a third party other than the instructions given in this web/prospectus published by the EDECU/USJ will not be considered. Therefore you are required to read and understand the web/prospectus clearly. It is compulsory to keep this prospectus until the Graduation.
3. The University of Sri Jayewardenepura will not allowed to establish students unions and any other organizations to External degree undergraduates. The University will not consider such request.

4. It is strictly prohibited to use the University Emblem without proper approval for any purpose and it will be a punishable offence.

Registration for the External Degree Programs of Faculty of Applied Sciences

Calling Applications for Enrolments

The annual enrolments for the external degrees of the University of Sri Jayewardenepura commence by calling Applications through Newspaper advertisements (often within one month after the local G.C.E A/L results have been released), electronic media and the official website of the External Degrees and Extension Courses Unit (EDECU) of the University of Sri Jayewardenepura. Applicants should submit their online applications through the official website of the External Degrees and Extension Courses Unit of the University of Sri Jayewardenepura. Specific instructions for each study program offered by the Faculty of Applied Sciences are provided under the information section of the respective degree programs.

Issuing the Student Registration Numbers and the Record Books

A registration number and a record book will be issued for those who registered for the program. It is mandatory to produce the student record book and the registration number for all academic activities carried out with the University. The student record book is owned by the University until conferring the External Degree, and the ownership of the record book is vested with the student after graduation.

If the registration of the external student is cancelled, his student record book must be handed over to the University. In case of a misplaced record book, a complaint must be made to the police. In such cases, a copy of the student record book can be obtained after submitting a police report, a certified copy of the birth certificate, respective payment and an additional photograph.

As per the provisions of the Circular Number 09/2021 of the University Grants Commission, the student record book is prepared according to the name of the

birth certificate and the name of the degree certificate will be the same. Any legal amendments to the name of the External Degree candidate on their Birth Certificate should inform EDECU immediately with relevant documents. Any amendments to the name of the External Degree candidate after the effective date of the Degree will be rejected.

Registration Period

First-time registration of the External Degree programme will be valid for 03 academic years for the SLQF level 5 degrees and 04 academic years for the SLQF level 6 degrees. If any candidate fails to complete the degree programme within the first stipulated academic years should renew his/her registration period annually. Such renewal should be done prior to begin the new academic year. Payment for the annual renewal is Rs. 7,000.00. Accordingly, a student can renew his/her registration for another consecutive 03 academic years, and the total registration period is 06 academic years for the SLQF level 5 degrees and 07 academic years for the SLQF level 6 degrees. Applications and account number details for the payments of the Registration renewal can be obtained by the www.external.sjp.ac.lk

Cancellation of the Registration

The accuracy of the documents which have been submitted for registration will be checked by the University. If it is proved that false information or fictitious documents have been submitted, your registration will be cancelled without any refund.

If you need to cancel your registration after registering for the degree program, a request letter must be sent to the External Degrees and Extension Courses Unit via registered post, along with your student record book.

Refunding of Course fees on Cancellation of Registration

Registration fee of Rs. 15,000/- will not be refunded under any circumstances. The following conditions will apply for the refunding of course fee.

1. If a request is made within two weeks from the date of registration, 10% of the total course fee will be retained and the balance will be refunded.

2. Requests for refunding course fees made after two weeks from the registration date will be rejected.

Assessment Framework

Guidelines for Continuous Assessments

Continuous assessments are an integral component of the academic evaluation process of the External Degree Programmes offered by Faculty of Applied Sciences. The primary objective of continuous assessments is to provide timely and constructive feedback to students on their learning progress. Therefore, continuous assessments are considered formative assessments.

Students are strongly advised to sit for continuous assessments at the first scheduled attempt. Continuous assessment/s for a given course unit are conducted only once per semester, and under no circumstances will the same assessment be repeated within the same semester.

If a student misses a continuous assessment due to a valid reason (such as medical or other reasons approved by the Board of Study-FAS), the student will be allowed

to sit for the assessment at the immediate next available attempt. Until the assessment is completed, the results of the relevant course unit will be withheld.

If a student fails to complete the continuous assessment within the approved re-sitting opportunities, the final grade of the course unit will be determined without continuous assessment marks, and a zero mark will be assigned for the continuous assessment component.

Conduct of Continuous Assessments

1. Continuous assessments will be conducted only for course units in which they are specified in the approved course syllabus.
2. Continuous assessments will cover only the content that has been taught prior to the date of the assessment in that particular course unit.
3. The mark allocation and weighting of continuous assessments are specified in the course syllabus, which may be provided to students at the beginning of each semester.
4. Continuous assessments will normally be conducted in physical mode, unless otherwise decided by the Board of Study-FAS.
5. If a course is conducted by a single lecturer, that lecturer is responsible for:
    - Conducting the continuous assessment.
    - Marking the scripts.

- Submitting the marks and attendance records to the Programme Coordinator within two academic weeks from the date of conducting of continuous assessment.

6. If a course is conducted by more than one lecturer:
    - One lecturer will act as the Course Coordinator for continuous assessments.
    - Assessments may be conducted either separately for each component or as a combined assessment, as decided by the lecturers concerned.
    - The Course Coordinator is responsible for computing the final continuous assessment marks and submitting them with attendance records to the Programme Coordinator within two academic weeks from the date of conducting of continuous assessment.
7. For physically conducted assessments, all marked answer scripts and attendance sheets must be submitted to the Programme Coordinator.

8. In special cases, if online assessments are conducted, the lecturer-in-charge or Course Coordinator must submit the following documents to the Programme Coordinator.
    - A video recording of the entire examination session, with all applicants required remaining visible on camera throughout.
    - The attendance record.

9. The dates of continuous assessments will be announced at the beginning of each semester by the program coordinator.

Format and Duration of Continuous Assessments

The duration of continuous assessments is determined by the credit value of the course unit, as shown below.

Credit Value of Course	Minimum Duration of Assessments	Maximum Duration of Assessments
3 credits	1 hour	1 hour 30 minutes
2 credits	40 minutes	1 hour
1 credit	20 minutes	30 minutes

A continuous assessment may consist of:

- Multiple-choice questions (approximately 2 minutes per question),
- Short or structured questions (approximately 10–15 minutes per question),
- A suitable combination of the above formats.

Final Examination Regulations

The purpose of final examinations is to evaluate the overall achievement of students in relation to the intended learning outcomes of each course unit.

Final examinations are conducted at the end of each semester according to the academic calendar approved by the University. Students are required to sit for the final examinations of all registered course units in the first available attempt.

Conduct of Final Examinations

1. Final examinations shall be conducted for all course units as specified in the approved curriculum and syllabus.
2. The final examination of each course unit shall assess the entire content covered during the semester unless otherwise the lecturer-in-charge of particular course unit gives special instructions.
3. The duration of final examinations shall be determined by the credit value of the course unit, as follows:

Credit Value of Course	**Duration of Final Examination**
3 credits	3 hours
2 credits	2 hours
1 credit (theory)	1 hour
1 credit (practical)	3 hours

4. Final examinations shall normally be conducted in physical mode, unless otherwise decided by the University or relevant authorities.
5. Students must present a valid student identity card and examination admission card to enter the examination hall.
6. Students must comply with all examination instructions and invigilation procedures issued by the University.

Examination Regulations (Examination Bylaws)

The following examination regulations will be effective for students entering the external degrees offered by the Faculty of Applied Sciences in the year 2026 and onwards to follow BSc/BSc honors degree programs.

Academic Year and Semester

An academic year consists of two semesters and each semester has a period of maximum 15 weeks of teaching.

BSc Degree Programs

All the students must register for their respective degree programs at the first year. Thy can not change their degree programs later.

The Board of Study-FAS will decide the maximum number of students eligible for each of the degree program.

Course Units

Course units conducted by each Department are included in the Faculty Prospectus. A course unit may consist of one or more of the following components: lectures, practical, field sessions, seminars, case studies, assignments, projects, and guided self-studies.

Credit Values of Course Units

Each course unit has a defined credit value ranging from 1.0 to 8.0 which is always a whole number. The credit value is an indicator of the volume of learning for each course unit. One credit is considered equivalent to 50 notional learning hours for a taught course, laboratory studies or field studies. In the case of industrial training and research, one credit is considered equivalent to a minimum of 100 notional hours. The notional learning hours include direct contact hours, time spent in self-learning, preparation for assignments, carrying out assignments and assessments.

Types of Course Units

Course units are classified as follows.

1. Compulsory Course Units - Course units for which candidates should obtain a minimum specified grade at the examination to qualify for the Degree or a Class (in the Degree). Examples: Practical course units, Research projects for BSc Honours Degree candidates.
2. Core Course Units - Course units, which are essential components of a subject. All candidates must follow the Core course units and candidates who do not sit for an examination of a Core course unit will be given an absent (ab) grade as given in Section 19.
3. Optional Course Units - These course units are chosen by candidates according to their preference in order to complete the degree course. Candidates can choose to follow these units in the relevant year.

Course Units for BSc Honours Degree Programmes

In order to complete an Honours Degree Programme, a candidate should register and sit for final examination for course units with a minimum total credit value of 120

and a maximum of 126. In order to complete an BSc Degree Programme, a candidate should register and sit for final examination for course units with a minimum total credit value of 90 and a maximum of 94. The upper limit is not applicable to the BSc qualification in fallback option.

Absence from Final Examinations

1. Students who are absent without a valid reason for a final examination shall be recorded as absent and shall be required to sit for the examination as repeat candidates at the next available attempt.
2. Students who are unable to sit for a final examination due to medical or other valid reasons, supported by acceptable documentary evidence and approved by the study board, shall be considered as having a valid absence.
3. Students with valid absences may be permitted to sit for the final examination with all privilages at the next scheduled opportunity, subject to the approval

of the Board of Study-FAS and/or Senate. However, they are required to pay the relevant fees for the repeat examinations.

Repeat Examinations

1. Students who fail a final examination or are absent without valid reasons shall be required to repeat the examination as repeat candidates in the next available examination session.
2. In the event a student repeats a course unit, the highest grade obtainable shall be in accordance with the University examination regulations applicable to external degree programmes.
3. Students repeating a final examination must comply with all registration and payment requirements applicable to repeat candidates. Even with medical ground, student have to paystipulated fee for repeat examinations.

Repeating a credit course

- It is advised to repeat all the course units that have unsatisfactory (D, D+,C- and C) and fail grade (E). A student shall repeat that course by registering in that course during a subsequent academic year to complete the degree.
- A candidate who repeats course/s of an examination is eligible to obtain maximum of C+ grade, irrespective of the actual marks obtained.
- If the student obtains a lower grade at a repeat attempt than a grade received in earlier attempts, the better grade shall be retained.
- A student who fails to sit for the examination in relevant academic year without a valid reason will be considered as a repeat student.

Withdrawal of examination for medical reasons

A student has the option to withdraw from examination of any course unit during the examination period, provided they can substantiate valid medical reasons with appropriate documentation. In such circumstances, the student shall be designated with the symbol "MC". It is mandatory for the student to adhere to the University's guidelines, as outlined on www.external.sjp.ac.lk, when applying for a medical withdrawal. Additionally, the student must plan to undertake the withdrawn course(s) in the following academic year.

Number of attempts per course

A candidate will have three renewal chances and a maximum of 07 academic years to complete his/her SLQF level 6 Degree Programme and a maximum of 06 academic years to complete his/her SLQF level 5 Degree Programme. As a result of that a candidate is eligible to sit maximum of seven (07) times of Level 1 courses, six (06) times of Level 2 courses and five (05) times of Level 3 courses and (04) times of Level 4 courses within 07 academic years registered for SLQF level 6-degree programmes. For SLQF level 5 degree, a candidate is eligible to sit maximum of seven (06) times of Level 1 courses, six (05) times of Level 2 courses and five (04) times of Level 3 courses within 06 academic years

Release of Results

1. Final examination results shall be released only after approval by the relevant examination boards and authorities of the University.
2. The results published by the University shall be considered final and official.
3. Students may request re-scrutiny or re-evaluation of examination results within the time period and according to the procedures prescribed by the University.

Re-Scrutinizing of Exam Results

Students who are dissatisfied with their final examination results may submit an appeal in writing to the DR/SAR/AR-EDECU-USJ, following the official procedure and within 14 days after issuing the results by the University. More details can be obtained via www.external.sjp.ac.lk The decision of the re-scrutinizing committee shall be final and binding.

Computation of Final Marks and Grades

The final mark and grade of a course unit that includes continuous assessments will be determined according to the following rules.

1. For students who complete both the continuous assessment and the final examination at the first attempt, the final mark will be the sum of both components, according to the approved weighting.
2. Students who are absent without a valid reason for a continuous assessment will receive a zero mark for that assessment.
3. Students who submit acceptable medical certificates or valid reasons approved by the Study Board will be permitted to sit for the continuous assessment at the next scheduled opportunity.
4. If a student repeats a course unit (as a repeat candidate, after medical approval, academic skip, or with Study Board approval), the student must

retake only the final examination. The marks of the continuous assessments will carry forward.

5. Students are not allowed to repeat continuous assessments independently. Continuous assessments can only be taken in the semester in which the course unit is officially offered.

Evaluation Criteria

In this program, student performance is meticulously evaluated in each course unit through diverse assessment methods including written examinations, practical assessments, oral exams, reports, presentations, and more. These assessments are tailored to match the specific learning objectives of each course, ensuring a precise measurement of acquired knowledge and skills. We remain flexible, adjusting assessment structures as needed to optimize learning outcomes.

When multiple assessment methods are utilized within a course unit, scores are amalgamated to determine the final grade. Crucially, students are provided with transparent grading criteria at the outset of each course, empowering them to understand evaluation processes and prepare effectively. This transparent approach fosters engagement and ensures students are equipped to meet expectations.

Student performance is graded on a 12-point scale as shown in the following table according to the marks obtained for each course unit.

Range of Marks*	**Grade Codes**	**Grade Point Value**
85-100	A+	4.00
70-84	A	4.00
65-69	A-	3.70
60-64	B+	3.30
55-59	B	3.00
50-54	B-	2.70
45-49	C+	2.30
40-44	C	2.00
35-39	C-	1.70

25-34	D+	1.30
20-24	D	1.00
00-19	E	0.00
---	Ab	0.00
---	M	0.00

**The mark ranges have been given as a reference. The mark ranges for a particular course unit may be decided by the examiners of the respective course unit based on the marks distribution.*

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Calculation of Grade Point Average (GPA)

The grades achieved by individual candidates in course unit examinations are assessed using the following equation to compute their grade point average (GPA). The resulting GPA will be calculated to two decimal places. Decimals beyond two places are rounded to the second decimal, in computing the GPA.

$$GPA = \frac{\sum[Grade\ Point\ scored\ for\ the\ course\ unit\ x\ Credit\ value\ of\ the\ coruse\ unit]}{Cumulative\ credit\ value\ of\ all\ course\ units\ followed}$$

Passing or failing a credit course

Candidates who achieve a grade of C or higher are regarded as having successfully pass the respective course unit. However, students who obtain grades below C (that is D, D+ and C-) are still eligible for qualification, provided they maintain a Grade Point Average (GPA) of not less than 2.00 and complete a minimum of 120 credits for SLQF level 6 degrees or minimum of 90 credits for SLQF level 5 degrees.

Research Project in Honours Degree Programmes

An Honours Degree candidate should obtain at least a D grade for the Research Project in order to qualify for an Honours Degree and should obtain at least a C grade for the Research Project in order to qualify for a First or Second Class in the Honours Degree.

Award of Classes

The program also offers the possibility of attaining different degree classifications based on academic performance. These classifications include First Class, Second Class Upper Division, and Second Class Lower Division, with specific GPA and grade criteria.

The cut-off levels of GPA for awarding classes/passes are shown in the following table.

Grade Point Average (GPA) for awarding classes/passes

Pass	Second Lower	Second Upper	First
2.00	3.00	3.30	3.70

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First Class

In order to award a "First Class", a student must have:

- Completed all the requirements within four consecutive academic

years from the date of the first registration except for approvals granted by the EDECU and the Senate on valid and accepted reason(s).

- Passed all the compulsory courses offered.
- Earned a GPA of not less than 3.70 for the entire degree program

Second Class (Upper Division)

In order to award a "Second Class (Upper Division)", a student must have:

- Completed all the requirements within four consecutive academic years except for approvals granted by the faculty board and the Senate on valid and accepted reason(s).
- Passed all the compulsory courses offered.
- Earned a GPA of not less than 3.30 for the entire degree program

Second Class (Lower Division)

In order to award a "Second Class (Lower Division)", a student must have:

- Completed all the requirements within four consecutive academic years except for approvals granted by the faculty board and the Senate on valid and accepted reason(s).
- Passed all the compulsory courses offered.
- Earned a GPA of not less than 3.00 for the entire degree program

Fro those who have GPA above 2.00 but less than 3.00 are qualifying for pass classification.

Examination Offences and Penalties

All examination candidates should abide by the regulations given in the Examination By-Law No.2 of 1986. Candidates who disobey the regulations will be penalized as stated therein.

Effective Date of the Degree

The effective date of the Degree shall be the next working day (excluding Sundays and public holidays) after the completion of the stipulated examination period, which includes the successful defense of the thesis/project. The stipulated examination period shall be considered to conclude on the last date of the Fourth Year, Second Semester course unit examinations, together with an additional period of approximately six (6) weeks for all the final evaluations of the thesis based research project.

Academic Structure and Support Services

Academic Support Services

The relevant departments, Faculty of Applied Sciences together with the External Degrees and Extension Courses of the University will provide the necessary student support for the students enrolled in this degree Programme.

Convocation

External Degree is conferred by the University of Sri Jayewardenepura at the External Degree Convocation annually. After issuing Final Examination Results, a degree verification letter will be issued subject to the approval of the Senate of the University of Sri Jayewardenepura. Details of the Convocation including applications and payments will be published on www.external.sjp.ac.lk . Invitations for the External Degree Convocation will be issued only for the graduands who applied for the Convocation. The External Degree will be conferred to the graduands (in the presence or the absence of the graduand) by the Chancellor/ Vice Chancellor of the USJ as a Ceremonial event. A copy Degree Certificate will not be issued. The Cloaks and the Sashes should be returned to the University and recorded in the Student Record Book.

Academic Integrity and Disciplinary Regulations

Rules, Regulations, Examination Irregularities and punishments

The Rules, Regulations, Examination Irregularities and Punishments pertaining to the internal candidates of the University of Sri Jayewardenepura also adhered to the External Degree candidates as well. The handbook for the examination rules and regulations is published in www.external.sjp.ac.lk*

As at the time of publication of this handbook, the latest version of this document is the one approved by the 555th Council of the University of Sri Jayewardenepura, held on 08 August 2024, with the recommendations of the 428th Senate of the University of Sri Jayewardenepura, held on 25 July 2024.

Bachelor of Science Honors in Polymer Products Manufacturing and Industrial Management

Introduction

The Department of Polymer Sciences (DPS) at the Faculty of Applied Sciences, University of Sri Jayewardenepura is happy to present a groundbreaking opportunity in higher education in Sri Lanka - the BSc Honors in Polymer Products Manufacturing and Industrial Management.

Innovatively designed as a four-year external degree program, this offering sets a new standard in accessible education. Unlike traditional external degrees conducted solely through distance learning, our program blends online and on-site lectures, ensuring a dynamic and interactive learning experience. With lectures split evenly between online and physical settings, students benefit from flexibility without compromising the quality of education.

A distinguishing feature of our program is its strong emphasis on practical learning. All practical course units are conducted in-person, providing hands-on experience essential for mastering polymer science and manufacturing techniques.

In addition, the program includes a unique 2-credit full-time internship course unit, which enables students to practically apply the theoretical knowledge gained during coursework in real industrial environments, while the research project is offered as a separate 8-credit course unit. Notably, this is the first time such a credit-integrated internship has been introduced within an external degree program in Sri Lanka, offering students valuable real-world exposure alongside rigorous academic training.

By pioneering this hybrid approach to external education, the University of Sri Jayewardenepura leads the way in offering a comprehensive and accessible pathway to a BSc honor degree. The Department of Polymer Science is committed to empowering students with the knowledge, skills, and practical experience needed to excel in the dynamic field of polymer Products manufacturing and industrial management.

We redefine higher education and prepare the next generation of industry leaders. Experience the flexibility of online learning and the hands-on rigor of on-site

instruction - with the BSc Honors in Polymer Products Manufacturing and Industrial Management at the University of Sri Jayewardenepura.

Program Learning Outcomes

Graduates of the BSc Honors in Polymer Products Manufacturing and Industrial Management degree program will attain a comprehensive and robust foundation in both theoretical and practical knowledge. They will exhibit a deep understanding of fundamental concepts, theories, and practical skills pertinent to Polymer Products Manufacturing, as well as a foundational understanding of management principles.

The successful completion of this program equips graduates to excel in competitive managerial roles, both within local and global polymer-related industries. Graduates will be prepared to pursue positions such as Polymer R&D Management, Production Management, Project Management, and Quality Control Management. Their qualifications will enable them to contribute to the advancement and success of organizations in these sectors.

In the development of this program, careful consideration has been given to the Sri Lanka Qualifications Framework (SLQF) guidelines, specifically the K-SAM (Knowledge, Skills, Attitudes, and Managerial) model. Additionally, the program's design adheres to the Program Learning Outcomes established by the Faculty of Applied Sciences at the University of Sri Jayewardenepura, ensuring that graduates meet the rigorous standards set by the university.

The specific Program Learning Outcomes of the BSc Honors degree in Polymer Products Manufacturing and Industrial Management are detailed as follows.

PLO1. Demonstrate competency in theoretical knowledge and practical and/or technical skills in the respective field of specialization.

PLO2. Communicate efficiently and effectively in the respective field of specialization using written, oral, visual and/or electronic forms.

PLO3. Facilitate and participate as an empathetic and emotionally intelligent team player with leadership qualities, in a group, diverse team or an organization.

PLO4. Apply subject-specific knowledge and skills creatively to solve real-world problems by making context-specific operational decisions while adapting to changing environments.

PLO5. Integrate creativity, innovation, and entrepreneurial and managerial proficiencies to build values.

PLO6. Implement subject-based solutions in keeping with ethical, societal and environmental norms and need for sustainable development.

PLO7. Secure life goals through lifelong learning with the aim of scholarly advancement and/or strengthening professional skills and ensuring the betterment of the community.

Admission criteria

Prospective candidates for the BSc Honors in Polymer Products Manufacturing and Industrial Management program are required at least to meet one of the following criteria to apply for the program.

i. Successful completion of the General Certificate of Education (Advanced Level) with three passes in one sitting, in the following streams:

- G.C.E A/L Examination (local) bio science stream (Biology, Physics, Chemistry)
- G.C.E A/L Examination (local) physical science stream (Combine Mathematics, Physics, Chemistry)
- G.C.E A/L Examination (local) Engineering Technology Stream (Science for Technology and Engineering Technology together with any other subject)

Or

ii. Attainment of three passes in one sitting in an equivalent qualification to the General Certificate of Education (Advanced Level) such as Pearson Edexcel International Advanced Level or Cambridge International Advanced Level.

Or

iii. Completion of a foundation course equivalent to SLQF level 2 after a minimum of 12 years of schooling, including qualifications from institutions like City and Guilds, HNDE, SLQF 2/NVQF 4, or higher in relevant fields.

Or

iv. In the field of Bioscience / Physical Science / Engineering Technology, as determined by the Faculty and the Senate, with:

a. Completion of NVQF Level 4 and a cumulative two (02) years of accredited work experience; or
b. Accredited Prior Learning followed by a corresponding cognitive bridging programme of a minimum of 30 credits.

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Candidates who meet any of the above qualifications are eligible to apply for the program. Applicants should submit their online applications through the official website of the External Degrees and Extension Courses Unit of the University of Sri Jayewardenepura. All successful applicants are required to undergo an aptitude test. The date and the venue of the aptitude test will be notified via the email address given in the application. ***Note that admission is solely based on the results of the aptitude test, conducted as part of the admission process.***

Selection for Registration

Selection will be based on the results of this aptitude test. The annual intake for the program will be determined by the availability of human and physical resources. Typically, this intake ranges between 60 to 80 students per year. It will be notified within 03 weeks from the date of aptitude test via registered mail to the address given during the registration process if a candidate has been selected for the program.

Programme Fees

The following fee structure is applicable for the BSc (Hons) in Polymer Products Manufacturing and Industrial Management for the academic year of 2026/2027

1. Application Fee

A non-refundable application fee of **LKR 5,000/=** must be paid at the time of submitting the application.

2. Registration and Course Fees

- **Registration Fee:** LKR 15,000/=
- **Course Fee:** LKR 1,385,000/=

3. Payment Options

Students may settle the registration and course fees under one of the following payment options:

Option I: Full Payment (Discounted)

- **LKR 1,400,000/=** as a one-time full payment, payable within two (02) calendar weeks from the first day of registration.
- A **10% discount** will be granted for full payment, reducing the total registration and course fee to **LKR 1,260,000/=**.

Option II: Installment Plan

- **First Installment:** LKR 700,000/=, payable within two (02) calendar weeks from the first day of registration
- **Second Installment:** LKR 350,000/=, payable on or before the first day of the 1st semester of the second academic year
- **Third Installment:** LKR 350,000/=, payable at the commencement of the 2nd semester of the second academic year

4. Accepted Payment Methods

Payments can be made through the following methods:

- Direct bank deposit
- Online bank transfer
- Approved bank student loan schemes
- Credit card payments

Fees for repeaters

Fee for renewal of registration - Rs. 7000.00 per year

Repeat examination fees

- For one to two course units - Rs. 4000.00
- For three to four course units Rs. 8000.00
- For five to seven course units Rs. 12000.00
- For eight to ten course units Rs. 15000.00

** The fee structure stated above is applicable only to repeat examinations for the relevant academic semester. Repeat examinations from different academic years will be assessed independently, and the total payable fee will be determined accordingly.*

Program Duration

The program spans four academic years, with each academic year divided into two semesters, each lasting fifteen (15) academic weeks. Each one credit taught course unit will have 15 direct contact hours (online or physical or both). Following the conclusion of each semester, two (02) calendar-weeks of study leave will be provided before examinations commence. Upon completion of the exams, again two to four calendar-weeks of semester break are granted. The maximum duration for the BSc honors in Polymer Products Manufacturing and Industrial Management degree program is seven (07) academic years from the date of his/her first registration. **Registration will not be extended after completion of seven academic years.**

Program Structure

1st Year 1st Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 1113	Fundamentals of Chemistry	03	Core
PPM 1122	Physical Chemistry	02	Core
PPM 1133	Fundamentals of Physics	03	Core
PPM 1142	Mathematics I	02	Core
PPM 1313	Fundamentals of Polymer Chemistry	03	Core
PPM 1212	Business Economics	02	Core
Total number of credits		Core– 15 Optional - 00	

1st Year 2nd Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 1153	Physics for Material Science	03	Core
PPM 1162	Mathematics II	02	Core
PPM 1323	Polymer Structures and Properties	03	Core
PPM 1332	Polymer Identification and Characterization	02	Core
PPM 1341	Polymer Fundamentals Laboratory	01	Core/Laboratory
PPM 1222	Management for Practitioners	02	Core
PPM 1232	Information Systems and Enterprise Resource Planning	02	Core
Total number of credits		Core– 15 Optional - 00	

2nd Year 1st Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 2311	Polymer Characterization and Analysis Laboratory	01	Core/Laboratory
PPM 2322	Polymer Viscoelasticity and Rheology	02	Core
PPM 2332	Polymer Degradation	02	Core
PPM 2342	Raw Rubber Manufacturing	02	Core
PPM 2391	Raw Rubber Manufacturing Laboratory	01	Core/Laboratory
PPM 2213	Fundamentals of Accounting and Finance	03	Core
PPM 2222	Human Resource Management	02	Core
PPM 2232	Marketing Management	02	Core
Total number of credits		Core– 15 Optional - 00	

2nd Year 2nd Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 2113	Introductory Statistics and Statistical Software	03	Core
PPM 2352	Polymer Blends and Composites	02	Core
PPM 2362	Polymer Compounding	02	Core
PPM 2373	Testing of Polymers	03	Core
PPM 2383	Dipping Technologies	03	Core
PPM 2242	Organizational Behavior	02	Core
Total number of credits		Core– 15 Optional - 00	

3rd Year 1st Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 3312	Plastic Product Manufacturing	02	Core
PPM 3323	Tyre Manufacturing Technology	03	Core
PPM 3333	Fiber Forming Polymers for Textile Industry	03	Core
PPM 3342	Fundamentals in Manufacturing Process Design	02	Core
PPM 3351	Fundamentals of LEAN Management	01	Core/Laboratory
PPM 3212	Entrepreneurship	02	Core
PPM 3222	Operations Management	02	Core
Total number of credits		Core– 15 Optional - 00	

3rd Year 2nd Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 3113	Industrial Statistical Methods	03	Core
PPM 3361	Polymer Products Manufacturing and Testing Laboratory	01	Core/Laboratory
PPM 3372	Biopolymer Products and Testing	02	*Optional
PPM 3382	Tools and Material Selections for Die and Mold Design	02	*Optional
PPM 3392	Latex Based Products Manufacturing	02	Core
PPM 3411	LEAN in Polymer Product Manufacturing	01	Core/Laboratory
PPM 3232	Operational Research	02	Core
PPM 3242	Business Innovation and Technology Management	02	Core
PPM 3252	Sustainability Management	02	Core
Total number of credits		Core– 13 Optional – 04	

**At least one out of PPM3372 or PPM3382 must be taken*

4th Year 1st Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 4311	Solidworks – Fundamentals of Parametric Modeling	01	Core/Laboratory
PPM 4322	Quality Assurance Tools and ISO Procedures	02	Core
PPM 4331	Fundamentals of Finite Element Analysis	01	Core
PPM 4342	Paints, Coatings and Adhesives Manufacturing	02	Core
PPM 4411	Practical Aspects of Finite Element Analysis	01	Core/Laboratory
PPM 4212	Business Law	02	Core
PPM 4222	International Business Management	02	Core
PPM 4232	Supply chain management	02	Core
PPM 4242	Project management	02	Core
Total number of credits		Core– 15 Optional - 00	

4th Year 2nd Semester

Course Code	Name of course unit	Credit Value	Status (Core/Optional)
PPM 4352	Polymer Waste Management and Environmental Sustainability	02	Core
PPM 4361	Solidworks for Product design and development in Polymer Industry	01	Core/Laboratory
PPM 4372	Occupational Health and Safety	02	*Optional
PPM 4382	Polymer Packaging and Printing	02	*Optional
PPM 4392	Life Cycle Assessment for Polymer Products and Processes	02	*Optional
PPM 4428	Polymer Product Manufacturing Industrial Based Research Project	08	Core
PPM 4432	Internship	02	*Optional
PPM 4252	Strategic Management	02	Core
Total number of credits		Core– 13 Optional – 08	

**At least one out of* PPM 4372, *PPM4382, PPM4392 or* PPM 4432 *must be taken*

This degree program is a comprehensive academic offering designed according to the Sri Lanka Qualifications Framework (SLQF) Level 6, leading to the attainment of a degree comprising 120 academic credits distributed across an eight-semester timeline. This program includes four distinct levels, each labeled as Level 1, Level 2, Level 3, and Level 4. Each level encompasses two semesters, each extending approximately 20 academic weeks including assessments/examinations. In each semester, students are expected to complete course units of at least 15 academic credits.

The qualifiers that can be obtained are given below.

1. BSc Honors in Polymer Products Manufacturing and Industrial Management (SLQF Level 6)

   A student must successfully complete a minimum of 120 credits, with a minimum of 30 credits earned from each of the four levels (Level 1, Level 2, Level 3, and Level 4), while maintaining a minimum overall Grade Point Average (GPA) of 2.00.

Furthermore, students who meet the requirements for a degree within four consecutive academic years of the external degree program can earn distinctions such as First Class, Second Class Upper Division or Second Class Lower Division based on their academic performance and timeline.

It is important to note that students whose overall GPA falls below 2.0 will not qualify for the BSc Honors degree in Polymer Products Manufacturing and Industrial Management. In such a scenario, an alternative pathway is available as follows. However, these alternatives will only be considered as fallback option. That is, once the student has completed 120 credits worth examinations/assessments during their studentship.

2. Bachelor of Science degree in Polymer Products Manufacturing and Industrial Management (SLQF Level 5)

i. Students are required to complete a minimum of ninety (90) credits, spanning Level 1, Level 2, and Level 3, with grade point average is not lower than 2.00 for all the course units in Level 1, Level 2, and Level 3.

ii. However, when computing the GPA, the grade points of all course units in Level 1, Level 2, Level 3, along with those in Level 4, having a minimum grade point of 2.0 or above, will be considered.

3. Higher Diploma in Polymer Products Manufacturing and Industrial Management (SLQF Level 4)

i. A student must complete a minimum of sixty (60) credits, spanning Level 1 and Level 2, with minimum grade point average is not lower than 2.00 in all the course units in Level 1 and Level 2.

ii. However, when calculating the GPA, the grade points of all course units in Level 1 and Level 2, along with those in Level 3 and Level 4 that have a minimum grade point of 2.0 or above, will be taken into account.

Course Descriptions

1st year 1st Semester

PPM 1113 Fundamentals of Chemistry

Credit Value:	03	Core/Optional:	Core	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able to* ● Compare and contrast different types of titration techniques and interpret the results by performing quantitative analysis ● Describe varDescribe the key principles of atomic structure and interatomic bonding ● ious types of organic reaction mechanisms and predict the outcomes of polymer-related chemical reactions ● Calculate and interpret key quantitative parameters in crystalline and non-crystalline materials ● Select suitable separation techniques in analysis of polymer materials.				
Assessments:	Continuous	02 quizzes 20% each			
	Final	Written paper 60%			

PPM 1122 – Physical Chemistry

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">On the completion of the course unit the student will be able to

● Calculate and interpret key quantitative parameters in reaction kinetics, phase diagrams, and diffusion and apply these calculations to real-world polymer manufacturing scenarios.
● Analyze the outcomes of polymer-related chemical reactions
● Assess the factors influencing reaction kinetics, phase diagrams, and diffusion in the context of polymer production and processing.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">02 quizzes 20% each</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 1133 Fundamentals of Physics

<table>
<tr><td>Credit Value:</td><td>03</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
Apply the laws of motion, energy and momentum to any tangible mechanical system and solve for relevant mechanics parameters.
Identify a oscillatory motion and solve for relevant mechanics parameters
Apply the laws of thermodynamics into isolated systems and extract relevant thermodynamic parameters of the system.
Explain the laws of electricity and magnetism and apply them in isolated systems and extract relevant parameters of the system.
Explain and solve problems relevant to behavior of light at different interfaces and interaction with matter.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Quizz 10% , Mid term 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 70%</td></tr>
</table>

PPM 1142 Mathematics I

Credit Value:	02	Core/Optional:	Core	Pre-requisites	None
ILO's:	*On the completion of the course unit the student will be able to* ● Explain the real numbers, linear and quadratic equations, Coordinate Geometry ● Describe functions, domain, range, and essential functions such as polynomial, rational, exponential, and logarithmic functions ● Explain basic concepts in trigonometry. ● Compute inverse and determinant of a matrix, the dot product and cross product of vectors.				
Assessments:	Continuous	quizzes 30%			
	Final	Written paper 70%			

PPM 1313 Fundamentals of Polymer Chemistry

Credit Value:	03	Core/Optional:	Core	Pre-requisites	None
ILO's:	*At the completion of this course student will be able to:* ● Recall fundamental concepts in polymer chemistry. ● Express different ways to determine polymer molar masses. ● Employ the relationship between the polymer structures to its properties. ● Compare and contrast different polymerization mechanisms.				
Assessments:	Continuous	Mid term 20%			
	Final	Written paper 80%			

PPM 1212 Business Economics

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">on completion of the course unit the student will be able to

● Describe fundamental concepts in Economics, basic economics questions and economics systems and fundamental concepts in macroeconomics.
● Explain the theory of demand, theory of supply and determine equilibrium, the theory of production and theory of cost.
● Identify different types of market structures.
● Explain government policy objectives and policy instruments.</td></tr>
<tr><td rowspan="2">Assessments:</td><td>Continuous</td><td colspan="4">Assignment - Individual report 20%</td></tr>
<tr><td>Final</td><td colspan="4">Written paper 80%</td></tr>
</table>

1st year 2nd Semester

PPM 1153 Physics for Material Science

<table>
<tr><td>Credit Value:</td><td>03</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>PPM 1133 Fundamentals of Physics</td></tr>
<tr><td>ILO's:</td><td colspan="5">At the completion of this course student will be able to:

● Apply quantum mechanics and explain the behavior of electrons and quantum partials under different constrains in quantum level.
● Explain and solve problems relevant to behavior of light at different interfaces and interaction with matter.
● Explain phenomena and solve problems relevant to electrical properties of matter using classical or quantum mechanics theories
● Explain phenomena and solve problems relevant to magnetic properties of matter using classical or quantum mechanics theories
● Explain phenomena and solve problems relevant to thermal properties of matter using classical or quantum mechanics theorie</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Quizz 10%, Mid term 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 70%</td></tr>
</table>

PPM 1162 Mathematics II

Credit Value:	02	Core/Optional:	Core	Pre-requisites	PPM 1142 Mathematics I
ILO's:	*At the completion of this course student will be able to:* ● Compute the limits of functions with properties of limits. ● Evaluate derivatives of functions using derivative rules. ● Apply derivatives to optimization problems. ● Compute the integrals using integration techniques with applications. ● Solve first and second order differential equations with different methods.				
Assessments:	Continuous	Mid term 30%			
	Final	Written paper 70%			

PPM 1323 Polymer Structures and Properties

Credit Value:	03	Core/Optional:	Core	Pre-requisites	None
ILO's:	*On the completion of the course unit the student will be able to* ● Recall the fundamental characteristics and classifications of polymers, including their microstructures, conformations, and key types of polymer substances and the distinct properties of polymers. ● Explain the relationship between polymer structures and their properties, including how variations in structural parameters impact the behavior and performance of polymers. ● Apply knowledge of polymer structures and properties to identify and recommend suitable polymers for specific industrial applications, considering factors such as mechanical, thermal, electrical and rheological properties.				
Assessments:	Continuous	2 Quizzes , 20% each			
	Final	Written paper 60%			

PPM 1332 Polymer Identification and Characterization

Credit Value:	02	Core/Optional:	Core	Pre-requisites	None
ILO's:	*On the completion of the course unit the student will be able to* ● Explain fundamentals of polymer characterization instruments/tools. ● Understand the spectrums, graphs, plots, data of the polymer characterization instruments/tools. ● Interpret the results. ● Select the suitable instrument for the required characterization need.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 60%			

PPM 1341 Polymer Fundamentals Laboratory

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">After the completion of the course unit the student will be able to
Apply theoretical knowledge and develop lab techniques on purification methods.
Demonstrate simple synthetic procedures and calculate the yield/ conversions.
Analyze experimental data, interpret and report the results in a scientific manner.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Quizzes 20% , Lab reports 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 1222 Management for Practitioners

Credit Value:	02	Core/Optional:	Core	Pre-requisites	None
ILO's:	*After the completion of the course unit the student will be able to* ● Analyze the concept of management and trace the evolution of management thoughts over time ● Evaluate how managers effectively navigate and lead business organizations in dynamic and ever-changing environments ● Examine the various types of management aspects practiced globally and their cultural implications				
Assessments:	Continuous	Group Assignment 40%			
	Final	Written paper 60%			

PPM 1232 Information Systems and Enterprise Resource Planning

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">on completion of the course unit, the student will be able to

● Define the concepts and techniques of technology management.
● Analyze the strategy of technology management within the organization.
● Assess enterprise systems and their impact on business processes.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assignment 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 80%</td></tr>
</table>

2nd year 1st Semester

PPM 2311 – Polymer Characterization and Analysis Laboratory

Credit Value:	01	Core/Optional	Core	Pre-requisites:	PPM 133.02 Polymer Identification and Characterization
ILO's:	*After the completion of the course unit the student will be able to* ● Understand the practical aspects of the theory components they have learned prior. ● Apply the theoretical knowledge in solving basic problems. ● Analyze the data/ plots/spectrums/graphs/results ● Evaluate data/ plots/spectrums/graphs/results.				
Assessments:	Continuous		Lab Reports 20%, Quizzes 20%		
	Final		Written paper 60%		

PPM 2322 – Polymer Viscoelasticity and Rheology

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>PPM 114.02 Mathematics for Polymer Science I

PPM 116.02 Mathematics for Polymer Science II</td></tr>
<tr><td>ILO’s:</td><td colspan="5">After the completion of the course unit the student will be able to

● Describe the fundamental concepts of polymer rheology, viscosity, and rubber elasticity.
● Apply the theories of polymer rheology, viscosity, and rubber elasticity to solve quantitative problems.
● Compare and contrast different rheometers and employ most suitable instrumentation for a particular quest.
● Recall mechanical models and related theories.
● Apply mechanical models to describe behavior of a polymer.
● Evaluate and create predictions for long-term behavior of a polymer under various conditions.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Mid term written exam 10%, Quizzes 10%, Students presentation 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 2332 – Polymer Degradation

Credit Value:	02	Core/Optional	Core	Pre-requisites:	None
ILO's:	*After the completion of the course unit the student will be able to* ● Recall the fundamental concepts in polymer degradation. ● Distinguish different degradable pathways. ● Assess the suitable waste management strategy for a polymer product. ● Explain different strategies for the development of degradable materials.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 80%			

PPM 2342 – Raw Rubber Manufacturing

Credit Value:	02	Core/Optional	Core	Pre-requisites:	None
ILO's:	*After the completion of the course unit the student will be able to* ● Define and compare detailed procedures of different raw rubber products ● Describe in detail the reason for manufacturing procedures and used chemicals for each product ● Interpret rejects/ properties by observing added ingredients and process parameters.				
Assessments:	Continuous	02 Quizzes 40%			
	Final	Written paper 60%			

PPM 2391 – Raw Rubber Manufacturing Laboratory

Credit Value:	02	Core/Optional	Core	Pre-requisites:	PPM 2342 Raw Rubber Manufacturing
ILO's:	*After the completion of the course unit the student will be able to* ● Define and compare detailed procedures of different raw rubber products ● Describe in detail the reason for manufacturing procedures and used chemicals for each product ● Interpret rejects/ properties by observing added ingredients and process parameters.				
Assessments:	Continuous		Presentations 30% Viva 30%		
	Final		Written paper 60%		

PPM 2213 – Fundamentals of Accounting and Finance

Credit Value:	03	Core/Optional	Core	Pre-requisites:	None
ILO's:	*After the completion of the course the student will be able to* ● Describe the basic principles of Accounting, Budgeting and Finance ● Illustrate theoretical and practical knowledge to interpret financial statements ● Evaluate the investment opportunities considering time value of money Prepare a minor scale feasibility report incorporating Accounting, Budgeting and Finance information.				
Assessments:	Continuous	Group Assessment 40%			
	Final	Written paper 60%			

PPM 2222 – Human Resource Management

Credit Value:	02	Core/Optional	Core	Pre-requisites:	None
ILO's:	*After the completion of the course unit the student will be able to* ● Recall the fundamental concepts and principles of Human Resource Management, including its strategic goals, functions, and organizational significance. ● Apply key HRM practices, such as job design, recruitment, selection, training, and performance evaluation, in a simulated or real-world context. ● Analyze and address challenges in human resource management, including labor relations, conflict resolution, and the emerging area of Green HRM.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 60%			

PPM 2232 – Marketing Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">After the completion of the course unit the student will be able to
● Define literature on marketing theories. Express the importance of marketing's role in driving success and delivering results
● Apply the function of marketing within the organization
● Employ marketing as a key tool in confronting the challenges in the industry.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assignment 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

2nd year 2nd Semester

PPM 2113 – Introductory Statistics and Statistical Software

Credit Value:	03	Core/Optional	Core	Pre-requisites:	PPM 114.02 Mathematics for Polymer Science I PPM 116.02 Mathematics for Polymer Science II
ILO's:	*After the completion of the course unit the student will be able to* ● Describe what is/ role/limitations/ of statistics ● Identify type of/scale of measurements of variables ● Apply suitable sampling method and method of data collection for a given situation ● Perform a basic descriptive statistical analysis ● Calculate and interpret probabilities for a given problem ● Perform inferential statistical analysis for a given problem ● Perform basic analyses using statistical software				
Assessments:	Continuous		Mid term 20%, Assignment 10%		
	Final		Written paper 50% Practical 20%		

PPM 2352 – Polymer Blends and Composites

Credit Value:	02	Core/Optiona	Core	Pre-requisites:	None
ILO's:	*After the completion of the course unit the student will be able to* ● Recall and articulate fundamental concepts and theories related to polymer blends and composites, including their classifications, advantages, and thermodynamic principles. ● Utilize mathematical expressions effectively to address quantitative inquiries and solve problems related to polymer blends and composites, enabling the quantitative assessment of key properties and characteristics. ● Evaluate and assess various methods employed in the preparation of diverse types of polymer blends and composites, considering their applicability, advantages, and limitations in the context of materials manufacturing.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 60%			

PPM 2362 – Polymer Compounding

Credit Value:	02	Core/Optiona	Core	Pre-requisites:	None
ILO's:	*After the completion of the course unit the student will be able to* ● Distinguish the type of latex using their characteristics. ● Select a suitable processing technique to manufacture a given latex product. ● Select a suitable compounding technique to manufacture a given latex product. ● Describe the rubber/plastic compounds by selecting correct loading of compounding ingredient/s. ● Prepare a rubber/plastic compound for a given formulation.				
Assessments:	Continuous	Mid-term 40%			
	Final	Written paper 60%			

PPM 2373 – Testing of Polymers

Credit Value:	03	Core/Optional	Core	Pre-requisites:	None
ILO's:	*On completion of the course unit, the student will be able to* ● Define the mechanical properties of the polymers. ● Recall the methods of polymer testing. ● Select and use the suitable testing method for a given analysis.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 60%			

PPM 2383 – Dipping Technologies

Credit Value:	03	Core/Optional	Core	Pre-requisites:	None
ILO's:	*On completion of the course unit, the student will be able to* ● Define and compare detailed procedures of different supported glove products, ● Describe in detail the reason for manufacturing procedures and used chemicals for each product, ● Interpret rejects/ properties by observing added ingredients and process parameters.				
Assessments:	Continuous	Assessment 40%			
	Final	Written paper 60%			

PPM 2242 – Organizational Behavior

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On completion of the course unit the student will be able to

● Recall the significance of Organizational Behavior (OB), its contributing disciplines, and the managerial role in shaping effective organizational activities.
● Analyze individual and group dynamics in the workplace
● Identify managing workplace challenges, including stress, conflicts, communication, power dynamics, and organizational culture.
● Explore strategies for stress management, conflict resolution, effective communication, and ethical leadership.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assessment 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

3rd year 1st Semester

PPM 3312 – Plastic Product Manufacturing

Credit Value:	02	Core/Optional	Core	Pre-requisites:	None
ILO's:	At the completion of this course student will be able to ● Describe polymer processing operations related to plastic processing. ● Recall the machineries used for plastic processing. ● Evaluate the influence and importance of processing parameters on plastic processing operations. ● Analyze products defects that can be appeared during respective plastic processing operations. ● Select the most appropriate processing technique(s) for a newly design polymer product to be manufacture.				
Assessments:	Continuous	Quizzes 40%			
	Final	Written paper 60%			

PPM 3323 – Tyre Manufacturing Technology

<table>
<tr><td>Credit Value:</td><td>03</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">On completion of the course unit the student will be able to do

● describe history and steps of development of deferent types of tyres
● identify different components of tyres with respective to their function
● identify ingredients used in rubber compounds and design formulars used in the components used in tyres
● describe building a tyre from the components
● describe production of a tyre</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">mid term 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 3333 – Fiber Forming Polymers for Textile Industry

Credit Value:	03	Core/Optional	Core	Pre-requisites:	None
ILO's:	*On completion of the course unit the student will be able to* ● demonstrate proficiency in identifying fiber forming polymers ● Analyze structure-property relationships in natural/regenerated fibers ● Evaluate chemistry, process, and physical properties in synthetic fiber manufacturing				
Assessments:	Continuous	Quizzes 20% Group assignment 20%			
	Final	Written paper 60%			

PPM 3342 – Fundamentals in Manufacturing Process Design

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">At the completion of this course student will be able to

● Express the fundamental concepts of designing a manufacturing process in Polymer Industry.
● Apply the theories learnt to solve quantitative problems.
● Design a process from laboratory scale to industrial scale.
● Construct process flow sheets based on basic design criteria.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Mid term - 40 %</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 3351 – Fundamentals of LEAN Management

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">At the completion of this course student will be able to:

● Recall the fundamental principles and historical evolution of Lean Manufacturing, articulating its core concepts and significance in the context of polymer product manufacturing.
● Evaluate manufacturing processes through practical exercises and Waste Walks, categorizing and prioritizing the eight types of waste, to identify opportunities for process improvement.
● Apply LEAN tools and methodologies, such as identifying the 8 Wastes and conducting Waste Walks, to analyze manufacturing processes effectively.</td></tr>
<tr><td rowspan="2">Assessments:</td><td>Continuous</td><td colspan="4">Assignment – 20%

Case study - 20%</td></tr>
<tr><td>Final</td><td colspan="4">Written paper 60%</td></tr>
</table>

PPM 3212 – Entrepreneurship

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">on completion of the course unit the student will be able to

● Explain core concepts, techniques, approaches and significance of entrepreneurship and determine how successful polymer industry entrepreneurs create and build value for themselves and society
● Demonstrate an understanding of, and identify, new opportunities and translate them into viable business solutions or opportunities
● Apply personal creativity and explain how to take entrepreneurial initiatives innovatively to critically discuss ways in which entrepreneurial-minded individuals can thrive in large polymer related business organizations
● Appraise the role of small and medium scale enterprises in Sri Lankan context
● Describe the stages of the entrepreneurial process, the resources needed for the successful development of entrepreneurial ventures and develop a business plan</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Group Business Plan 20%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 80%</td></tr>
</table>

PPM 3222 – Operations Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">On the successful completion of this course, the student should be able to:

● Understand the importance of Operations Management as a major function in organizational structure, and identify objectives and characteristics of operations decisions.
● Explain important operations management concepts and functions.
● Demonstrate ability to design operations system decisions in both manufacturing and service organizations
● Apply suitable techniques for Demand forecasting, Facility location, Managing quality. Capacity plaining and Layout plaining</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Group Assignment 40 %</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

3rd year 2nd Semester

PPM 3113 – Industrial Statistical Methods

Credit Value:	03	Core/Optional	Core	Pre-requisites:	None
ILO's:	At the completion of this course student will be able to: ● Apply a suitable design for a given problem and analyze the data to draw conclusions. ● Apply a suitable non-parametric hypothesis test to test a certain hypothesis. ● Fit a suitable regression model and perform inferences. ● Use Statistical Process Control techniques to solve a given problem.				
Assessments:	Continuous	Mid term 20% Assignments 10%			
	Final	Theory 50% Practical 20%			

PPM 3361 – Polymer Products Manufacturing and Testing Laboratory

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">On the completion of the course unit the student will be able to

● Demonstrate the use of different vulcanizing systems in rubber processing.
● Interpret rheography of rubber compounds.
● Interpret the results of mechanical tests and draw conclusions about rubber performance.
● Analyze the effects of different plastic processing techniques on material properties and product quality.</td></tr>
<tr><td rowspan="2">Assessments:</td><td>Continuous</td><td colspan="4">Lab reports) 30%
Attendance 10%</td></tr>
<tr><td>Final</td><td colspan="4">Practical 60%</td></tr>
</table>

PPM 3372 – Biopolymer Products and Testing

Credit Value:	02	Core/optional	Optional	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able t*o ● Understand the principles of designing biopolymer-based materials for biomedical applications. ● Gain insights into the unique requirements and challenges in designing biopolymer-based materials for food packaging. ● Acquire skills in designing biopolymer coatings for various substrates.				
Assessments:	quizzes %, mid-term %, other % (specify)			Quizzes 30%	
	Final			Written paper 70%	

PPM 3382 – Tools and Material Selection for Die and Mold Design

Credit Value:	02	Core/optional	Core	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able t*o ● Recall compare detailed procedures of different casting methods and balloon preparation, ● Describe in detail the compounding ingredients and their amounts in a formulation, ● Interpret rejects/ properties by observing a formula and process parameters.				
Assessments:	quizzes %, mid-term %, other % (specify)			40%	
	Final			Written paper 60%	

PPM 3392 – Latex Based Products Manufacturing

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/optional</td><td>Optional</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">Define the fundamental concepts related to material selection for dies, moulds, and tools in polymer product manufacturing.
Explain the various properties and characteristics of materials used for dies and moulds.
Select appropriate heat treatment techniques to be used in tool making materials
Recall basic concepts in designing dies and moulds for polymer processing.
Explain product designing process.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">quizzes %</td><td colspan="3">40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 3411 – LEAN in Polymer Product Manufacturing

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/optional</td><td>Core</td><td>Pre-requisites:</td><td>PPM 335.01 Fundamentals of LEAN</td></tr>
<tr><td>ILO’s:</td><td colspan="5">Demonstrate proficiency in Lean materials handling, showcasing knowledge of efficient material flow practices and improvement strategies.
Recognize the human aspect of Lean transformation and employ strategies for effective change management.
Evaluate case studies of successful Lean transformations and measure their impact on business performance.</td></tr>
<tr><td rowspan="2">Assessments:</td><td>Continuous</td><td colspan="4">Assignment – 20%

Case study - 20%</td></tr>
<tr><td>Final</td><td colspan="4">Written paper 60%</td></tr>
</table>

PPM 3232 – Operational Research

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">Describe how the Operational Research (OR) approach can be used in decision making
Identify and develop OR models from the verbal description of the real system
Solve optimization problems by using appropriate mathematical tool
Discuss the basic ideas behind each analytical tool, which is important for the reality check and sensitivity</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Group Assignment</td><td colspan="3">40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 3242 – Business Innovation and Technology Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">● Demonstrate a comprehensive theoretical understanding of innovation processes, encompassing various dimensions and new concepts like open innovation and social innovation
● Understand the pivotal role of innovation and technological change in organizations, including core management challenges associated with managing innovation effectively
● Develop critical analytical reasoning and strategic thinking skills to evaluate options, formulate strategies, and address managerial challenges in innovation management
● Cultivate creative problem-solving abilities for both internal and external management issues within organizations.
● Foster an attitude conducive to accepting diverse ideas, respecting differing perspectives, challenging the status quo, and embracing new innovative dynamics.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assignment 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60 %</td></tr>
</table>

PPM 3252 – Sustainability Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">Recognize sustainability and professional ethics, and its values from academic and industrial perspectives
Develop the critical thinking skills required to work with business and social issues in various ways and multiple scenarios.
Identify the key characteristics in each area of environment, social, and governance (ESG).</td></tr>
<tr><td rowspan="2">Assessments:</td><td>Continuous</td><td colspan="4">Quizzes 10% , Assignment 20%</td></tr>
<tr><td>Final</td><td colspan="4">Written paper 70%</td></tr>
</table>

4th year 1st Semester

PPM 4311 – SolidWorks – Fundamentals of Parametric Modeling

Credit Value:	01	Core/Optiona	Core	Pre-requisites:	None
ILO's:	● understand the concepts underlying parametric modeling. ● confidently navigate the SolidWorks interface and proficiently use its tools and commands for 3D modeling. ● create parametric 3D models, allowing for efficient design modifications and demonstrating a clear understanding of parametric relationships and constraints. ● assemble 3D models, effectively manage components, and ensure the proper fit and optimal functionality within intricate assemblies.				
Assessments:	Continuous	Quizzes 40 %			
	Final	Written paper 70%			

PPM 4322 – Quality Assurance Tools and ISO Procedures

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO’s:</td><td colspan="5">Recall and articulate the fundamental concepts in quality control and quality assurance, illustrating a comprehensive understanding of the principles and methodologies that underpin effective quality management.
Demonstrate practical proficiency by applying current methods and tools to analyze and solve quality-related issues in case studies, showcasing the ability to translate theoretical knowledge into real-world applications for quality improvement.
Interpret quality-related results, and they will possess the skills to define measures for the optimization of quality in various processes.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assignments 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 70%</td></tr>
</table>

PPM 4331 – Practical Aspects of Finite Element Analysis

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional</td><td>Core</td><td>Pre-requisites :</td><td>PPM 114.02 Mathematics for Polymer Science I
PPM 116.02 Mathematics for Polymer Science II</td></tr>
<tr><td>ILO’s:</td><td colspan="5">● Recognize the importance of finite element analysis.
● Understand basic principles of finite element analysis and structure the process of finite element analysis.
● Analyze different types of models/systems related to polymer industry to describe the iterative development process of a model and explain the use of models and simulations for hypothesis testing and explain how models link the physical world, the virtual world and the science of prediction.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">● Mid-semester/Quizzes 30%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">● Written paper 70%</td></tr>
</table>

PPM 4342 – Paints, Coatings and Adhesives Manufacturing

Credit Value:	02	Core/Optional	Core	Pre-requisites:	None
ILO's:	*At the completion of this course students will be able to:* ● Describe important components in paints, coatings, and adhesives. ● Describe major testing methods used to check the quality of paints, coatings, and adhesives. ● Appraise different types of paints, coatings, and adhesives. ● Evaluate ways to overcome challenges during formulating paints, coatings, and adhesives.				
Assessments:	● Continuous	● quizzes 20 %			
	● Final	● Written paper 80%			

PPM 4411 – Practical Aspects of Finite Element Analysis

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>PPM 4331 Fundamentals of Finite Element Analysis</td></tr>
<tr><td>ILO’s:</td><td colspan="5">At the completion of this course students will be able to:
Recognize the importance of finite element analysis.
Understand basic principles of finite element analysis and structure the process of finite element analysis.
Analyze different types of models/systems related to polymer industry to describe the iterative development process of a model and explain the use of models and simulations for hypothesis testing and explain how models link the physical world, the virtual world and the science of prediction. .</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Details: quizzes %, mid-term %, other % (specify)
Presentations - 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Theory 30%, Computer Practical Session 30%</td></tr>
</table>

PPM 4212 – Business Law

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Understand the relationship between the subjects of Science and Business.
● Explain the legal framework within which business activities shall be carried out.
● Apply concepts, principles, and theories and understand the basics of Business Law.
● apply Business Law in their work/businesses to ensure the smooth functioning of the transactions.
● handle the work confidently with the satisfaction that they are aware of the expectations of the relevant authorities.
● Decide the most suitable step to be taken in case the legal rights of the business are violated.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Assignment 30%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 4222 – International Business Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Gain comprehensive knowledge in International Business Management, blending theoretical concepts with practical applications
● Assess diverse perspectives on global business challenges to devise sustainable solutions for decision-makers.
● Stay updated on contemporary management practices in international business organizations
● Develop a deep understanding of global socio-political-economic dynamics and Sri Lankan cultural nuances</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">quizzes %, mid-term %, other % (specify)
quizzes 30 %</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 70%</td></tr>
</table>

PPM 4232 – Supply Chain Management

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Understand of Supply Chain Management (SCM) and its need for organizational success
● Explain the phases of Supply Chain Management decisions and apply them in practice
● Demonstrate the ability to link from Supply Chain Management to other business functions
● Identify the importance of modern information & communication technology in Supply Chain Management
● Have ability to assess the performance Supply Chains</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">quizzes %, mid-term %, other % (specify)
quizzes 40 %</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 4242 – Project Management

Credit Value:	02	Core/Optional:	Core	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able to* ● Define different types of projects for industries and businesses, explain project management life cycle and project management leadership ● Design projects for product development and service expansion ● Evaluate project progress reviews.				
Assessments:	Continuous	quizzes %, mid-term %, other % (specify) quizzes 40 %			
	Final	Written paper 60%			

4th year 2nd Semester

PPM 4352 – Polymer Waste Management and Environmental Sustainability

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● List of current environmental issues related to polymer waste
● Explaining strategies used for polymer waste management
● Evaluate techniques and strategies used in polymer waste management
● Design a waste management system and judge their advantages and disadvantages</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Details: quizzes %, mid-term %, other % (specify)
Student presentation- 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Written paper 60%</td></tr>
</table>

PPM 4361 – SolidWorks for Product Design and Development in Polymer Industry

<table>
<tr><td>Credit Value:</td><td>01</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Use advanced solid modelling and surface modelling techniques to develop concept models.
● Demonstrate the ability to create complex and accurate parametric 3D mold geometries using SolidWorks.
● Conduct injection molding simulations using SolidWorks to analyze and refine mold designs for optimal manufacturing outcomes.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">quizzes %, mid-term %, other % (specify)
Quizzes 40 %</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Theory 60%</td></tr>
</table>

PPM 4372 – Occupational Health and Safety

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Optional</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Analyze risks and hazards associated with processes and materials.
● Design safe work procedures.
● Apply suitable control/preventive measures.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">quizzes %, mid-term %, other % (specify)
Quiz or student presentations (40%)</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Theory 60%</td></tr>
</table>

PPM 4382 – Polymer Packaging and Printing

Credit Value:	02	Core/Optional:	Optional	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able to* ● Assess and recommend appropriate polymer materials for diverse packaging applications, considering factors such as barrier properties, compatibility with sterilization methods, thermal stability, and environmental impact. ● Assess the suitability of various printing technology for specific packaging applications. ● Evaluate the health risk of packaging and printing materials				
Assessments:	Continuous	quizzes %, mid-term %, other % (specify) quizzes 40%			
	Final	Theory 60%			

PPM 4392 – Life Cycle Assessment for Polymer Products and Processes

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Optional</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
Recall and articulate the various stages and scope definition involved in product and process life cycles, demonstrating a comprehensive understanding of life cycle concepts
Describe the importance of life cycle assessment specifically within the context of the polymer industry, emphasizing its role in evaluating environmental impacts and guiding sustainable practices in polymer product development and manufacturing
Apply the ISO standard methodology for conducting life cycle analyses, and they will demonstrate the ability to utilize LCA software tools for case-based assessments in the polymer industry. This includes analyzing environmental impacts, carbon footprint, water footprint, and eco-design aspects of polymer products and processes.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Case study - 20 %,
Mid-term/quizzes - 10%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Theory 70%</td></tr>
</table>

PPM 4428 – Polymer Product Manufacturing Industrial Based Research Project

<table>
<tr><td>Credit Value:</td><td>08</td><td>Core/Optional:</td><td>Core</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Develop and execute research projects with scientific rigor,
● Analyze experimental data proficiently and articulate scientific insights,
● Defend research findings to diverse audiences:</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Research proposal (15%)
Literature review (15%)
Data collection, analysis assignments (15%)
Research presentation (15%)</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Final project defense 30%
Attendance 10%</td></tr>
</table>

PPM 4432 – Internship

<table>
<tr><td>Credit Value:</td><td>02</td><td>Core/Optional:</td><td>Optional</td><td>Pre-requisites:</td><td>None</td></tr>
<tr><td>ILO's:</td><td colspan="5">On the completion of the course unit the student will be able to
● Apply theoretical knowledge of polymer science and industrial management in a real-world industrial setting.
● Analyze industrial processes, workflows, and problem-solving approaches within a professional environment,
● Demonstrate effective communication, teamwork, and professional conduct in a workplace context.
● Evaluate personal performance and learning outcomes through reflective practice and supervisor feedback.</td></tr>
<tr><td rowspan="2">Assessments:</td><td colspan="2">Continuous</td><td colspan="3">Logbook 10%
Report 10%
Proposal presentation 40%</td></tr>
<tr><td colspan="2">Final</td><td colspan="3">Attendance 10%
Presentation 30%</td></tr>
</table>

PPM 4252 – Strategic Management

Credit Value:	02	Core/Optional:	Core	Pre-requisites:	None
ILO's:	*On the completion of the course unit the student will be able t* ● Compare and contrast different types of titration techniques and interpret the results by performing quantitative analysis. ● Describe various types of organic reaction mechanisms and predict the outcomes of polymer-related chemical reactions. ● Describe the key principles of atomic structure and interatomic bonding. ● Calculate and interpret key quantitative parameters in crystalline and non-crystalline materials. ● .Select suitable separation techniques in analysis of polymer materials.				
Assessments:	Continuous	quizzes %, mid-term %, other % (specify) Quizzes 40%			
	Final	Theory 60%			

Medium of Instruction

The medium of instruction, practical sessions, and assessments/examinations is English. Therefore, fluency in English is necessary to successfully complete the degree program. It is important to note that complementary English courses are not included in the curriculum.

Mode of Teaching/Learning

Online lectures will be conducted on weekdays (except Fridays) from 6.00 p.m. to 10.00 p.m., and on-site sessions will be conducted on weekends from 8.00 a.m. to 4.00 p.m.

Audio or visual recordings of lectures will not be provided. Therefore, students are strongly advised to attend all scheduled lectures.

Research projects and independent learning

Several course modules within this degree programme are designed to promote practical skills and independent learning through structured laboratory-based course units and hands-on practical activities. In addition, students are offered the opportunity to participate in a full-time industrial internship, while a compulsory Final Year Research Project provides an opportunity to undertake an in-depth investigation under academic supervision.

In the final stage of the programme, particularly in the 8th semester, students may engage in full-time research, enabling them to apply theoretical knowledge, develop problem-solving abilities, and cultivate independent learning and professional research skills in both academic and real-world settings.

Final Year Research Project – General Guidelines

The Final Year Research Project is an individual piece of work carried out under the supervision of an academic staff member. Students are required to conduct a systematic investigation on an approved topic and submit a Final Year Research Project Report at the end of the project period.

The project aims to assess the student's ability to

- Apply scientific and technical knowledge,
- Design and conduct experiments or studies,
- Analyse and interpret data, and
- Communicate research findings in a structured academic format.

Expected Outline of the Final Year Research Project Report

The report should generally include the following sections.

i. Title Page
ii. Abstract
iii. Introduction and Objectives
iv. Literature Review
v. Materials and Methods / Methodology
vi. Results and Discussion
vii. Conclusions and Recommendations
viii. References
ix. Appendices (if applicable)

The report must follow the formatting and submission guidelines issued by the Department and Faculty.

The Department of Polymer Science –Faculty of Applied Sciences

The Department of Polymer Science (DPS) at the Faculty of Applied Sciences, University of Sri Jayewardenepura is a pioneering academic and research hub in Sri Lanka dedicated to the study of polymers, the essential materials that underpin modern manufacturing, technology, and industrial innovation. Established as an independent department in 2018 in response to strong national demand, DPS has rapidly emerged as a leader in education, research, and industry engagement in the polymer sector, including rubber, plastics, coatings, composites, and advanced materials.

The Department offers a range of cutting-edge academic programmes encompassing fundamental science, engineering principles, and real-world applications of polymer science and technology. Its curriculum integrates chemistry, physics, processing, characterization, and industrial practices to equip

graduates with both theoretical depth and practical expertise. As the first and only dedicated Polymer Science department in Sri Lanka, DPS has a strong track record of producing professionals and researchers who make significant contributions to the polymer and allied industries locally and internationally.

Committed to excellence, the Department also facilitates advanced postgraduate study, research projects, and industry partnerships that foster innovation, enhance competitiveness, and drive sustainable development in the polymer field.

Degree Programmes

The Department of Polymer Science offers a suite of intellectually rigorous and industry-oriented undergraduate degree programmes designed to develop competent professionals with strong scientific foundations and practical expertise in polymer science and its applications.

- **B.Sc. Degree in Polymer Science and Technology (SLQF 5)**

  A solid foundation programme emphasizing core principles of polymer chemistry, physics, processing, and materials characterization.
- **B.Sc. Honours in Applied Sciences (Polymer Science and Technology) (SLQF 6)**

  An advanced honours degree that integrates broad science fundamentals with specialised polymer knowledge, preparing students for diverse scientific careers and postgraduate study.
- **B.Sc. Honours Degree in Polymer Science (SLQF 6)**

  A specialised honours programme focused on in-depth polymer science, advanced materials, and cutting-edge research methodologies.
- **B.Sc. Honours Degree in Polymer Science and Industrial Management (SLQF 6)**

  A unique interdisciplinary honours degree combining polymer science with industrial management, equipping graduates with the technical and

managerial skills required to lead in manufacturing and industrial environments.

Each of these programmes aligns with the Sri Lanka Qualifications Framework (SLQF) and is structured to meet national and international academic standards while addressing the needs of the evolving polymer and allied industries.

The Department also offers advanced postgraduate qualifications that foster research excellence, innovation, and specialised professional expertise in polymer science and technology:

- **Postgraduate Diploma in Polymer Science & Technology (SLQF 8)**
  A focused graduate diploma designed for professionals seeking to deepen technical knowledge and practical competencies in polymer applications.
- **M.Sc. in Polymer Science and Technology (SLQF 10)**
  A research-oriented master's programme emphasizing advanced polymer

concepts, experimental research, and problem-solving in industrial or academic settings.

- **MPhil in Polymer Science and Technology (SLQF 11)**
  A higher research degree that enables concentrated study and substantial original research under expert supervision.
- **Ph.D. in Polymer Science and Technology (SLQF 12)**
  The highest academic qualification offered by the Department, fostering independent research, innovation, and scholarly leadership in polymer science.

These postgraduate pathways provide opportunities for continuous professional advancement, research leadership, and contributions to national and global technological development.

For Academic Course Information

Photo	Name	degrees	designation	research interests	email address
	**Prof. Thusitha N.B. Etampawala**	B.Sc. (Hons) (Peradeniya), Ph.D. (Clemson University, USA)	Professor & Head of the Department	Exploring structure–property relationships in polymers, sustainable use of waste materials, and enhancement of rubber compounds with natural fillers.	tetampa@sjp.ac.lk
	**Laleen Karunanayake**	B.Sc. (USJ), Ph.D. (North London)	Senior Professor	Polyurethane nanocomposites, Polymer composites and blends, Use of Vegetable oils and their derivatives as an additive in the	laleen@sjp.ac.lk

				polymer industry, Use of locally available tannin materials to make polymeric resins	
	**K.M. Thilini D. Gunasekara**	B.Sc. (Hons) (Colombo), Ph.D. (Bowling Green Ohio, USA)	Professor	Smart materials: materials reactive to light, eat, mechanical energy, pH etc; Absorbing, materials: oil-sorbers (absorbing polymers), hydrogels (agricultural applications, sanitary products, etc); Surfactants, green polymers:	thilinidkm@gmail.com
	Dr. Madhubha	B.Sc. (Hons)	Professor	Polymer synthesis and	madhubh@sjp.ac.lk

	**shini Madduma arachchi**	(Kelaniya), Ph.D. (Oklahoma State, USA)		characterization, dynamics of polymers at interface, structure and dynamics in surfactant systems, development of superhydrophobic surfaces.	
	**Dr. D. T. Dhammika Weerathunga**	B.Sc. (USJ), M.Sc., Ph.D. (Kyushu U., Japan)	Senior Lecturer Gr II	Synthetic / Natural Rubber Chemistry, Latex Technology, Polymer Chemistry, Fuel Cells, Electrocatalysis and Carbon Nano Materials.	dhammikaweerathunga@sjp.ac.lk
	Dr. Sampath Gunathila	B.Sc. (Kelaniya), M.Sc.	Senior Lecturer Gr II	Bio nanocomposites, Biopolymer	sgunathilake@sjp.ac.lk

	**ke**	(UOC), Ph.D. (UM, Malaysia)		hydrogels, Biopolymer packaging, Drug delivery	
	**Dr. Sulashi Chathushka Samarasinghe**	B.Sc. (UOM), Ph.D. (NTU, Singapore)	Senior Lecturer Gr II	Membrane synthesis, Pollution Control, Environmental Engineering, Material Engineering	sulashisama@sjp.ac.lk

Supporting Staff

- **Ms. K.A.S.Kahandawala** – Management Assistant
- **Ms. Hasanthika Somachandra** – Technical Officer
- **Mr. Thilina Karunarathna** – Lab Attendant
- **Ms. P.N. Pathirage** – Lab Attendant (on contract)

Academic Counselors: Details and contact information.

Dr. Sampath Gunathilake
Contact number – 0704809162
Email - sgunathilake@sjp.ac.lk

Dr. Sulashi Samarasinghe
Contact number – 0765603885
Email - sulashisama@sjp.ac.lk

For Registration & Examination Information

External Unit Administrative staff

- Mrs.T.M.H.P.K.Gunathilake
  Deputy Registrar
  Contact Number – 0112802851
  Email – tmhpk@sjp.ac.lk

- Mrs.G.W.L.Priyathika
  Senior Assistant Bursar
  Contact Number – 0112802753
  Email - externalfinance@sjp.ac.lk

Supporting Staff for Registration & Examination Matters

- Ms. G.N.U.D. Perera - Management Assistant (on contract)

For general information

The Deputy Registrar
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Details about installment payments, academic timetables, examination timetables, examination admissions, registration renewal and the convocation will be informed via www.external.sjp.ac.lk website only. Letters will not be sent in this regard. Therefore, we advise you to visit the www.external.sjp.ac.lk website regularly.