

DEPARTMENT OF PRINTING AND PACKAGING TECHNOLOGY

SE : III SEM (CBCS)

Subject: Applied Mathematics -III (PPC301)

- CO1. Obtain and invert Laplace Transform using standard results and shifting theorem.
- CO2. Determine eigen values & eigen vectors of a matrix and power or exponential of a matrix using them.
- CO3. Formulate and analyze mathematical problems followed by drawing clear and reasonable conclusions.
- CO4. Infer about a particular sample with high degree of reliability.
- CO5. Formulate and analyze statistical problems followed by drawing clear and reasonable conclusions.
- CO6. Apply fourier transform in engineering learning

Subject: Packaging Introduction & Concepts (PPC302)

- CO1. Effectively observe and compare the different package forms
- CO2. Describe the importance of compatibility studies and their associated parameters
- CO3. Analyze the various hazards & environmental issues related to Packaging
- CO4. Analyze the aesthetics of a package and the differentiating factors
- CO5. Elaborate the importance of quality in packaging
- CO6. Explain significance of packaging in terms of today's market

Subject: Introduction to Printing Technology (PPC303)

- CO1. Distinguish various printing principles like planography, intaglio & relief.
- CO2. Compare the process of image generation on the basis of typography, reprography & layout making.
- CO3. Analyze the various Press configurations of Offset, Gravure, Flexography & Letterpress.
- CO4. Classify Inks and Substrates used in various Printing technologies.
- CO5. Recognize various materials used in printing operations and distinguish Print finishing operations
- CO6. Choose an appropriate Printing process for any given Printing job.

Subject: Paper Based Packaging Materials(PPC304)

- CO1. Explain the raw materials involved in pulping and paper making process
- CO2. Explain the operations involved in pulping and paper making process
- CO3. Identify the manufacturing process for different types of paper based Packages.
- CO4. Design and estimate material requirements for major forms of paper based packaging.
- CO5. Test and analyze the major properties of paper based packaging materials.
- CO6. Describe the manufacturing process for different types of paper based Packages.

Subject: Glass, Metal and Textile Based Packaging Materials (PPC305)

CO1.Describe & interpret the various manufacturing process for glass bottles, metal cans & tubes and textile based bags .

CO2.Explain various design aspects for various types of package forms made up of glass.

CO3.Explain various design aspects for various types of package forms made up of metal.

CO4.Summarize the aerosol technology and its wide application in packaging.

CO5.Discuss various quality control and testing procedures for these package forms.

CO6.Describe the basics of fabric & textile technology to produce bags of various materials like jute, hemp etc.

Subject: Applied Mathematics III Tutorial (PPT301)

CO1.Obtain and invert Laplace Transform using standard results and shifting theorem.

CO2.Determine eigen values & eigen vectors of a matrix and power or exponential of a matrix using them.

CO3.Formulate and analyze mathematical problems followed by drawing clear and reasonable conclusions.

CO4.Infer about a particular sample with high degree of reliability.

CO5.Formulate and analyze statistical problems followed by drawing clear and reasonable conclusions.

CO6.Apply fourier transform in engineering learning

Subject: Principles of Graphic Arts and Design (PPL301)

CO1.Create a design based on specific requirement.

CO2.Analyze the usage of particular colour & text in Package design.

CO3.Generate various design layouts with proper visual impacts.

CO4.Create a design for folding carton with appropriate software.

CO5.Edit an image and use it in a Package design.

CO6.Generate Logos for a given concept or product.

Subject: Screen Printing Laboratory (PPL302)

CO1.Prepare screen printing image carrier by direct, indirect photographic methods.

CO2.Demonstrate the use of different photographic films for mesh preparation according to image.

CO3.Produce different printed samples for various substrates like fabric, glass, acrylic, wood by selecting suitable inks & coatings for that material.

CO4.Produce & analyze a halftone dot image generated for four color printing and registration of color.

CO5.Analyze the common faults in Screen Printing Process

CO6.Printing of two color job in textile and paper materials

Subject: Paper Based Material Testing (PPL303)

CO1.Check grammage and thickness of paper & paperboard.

CO2.Find out burst factor of paper.

CO3.Perform stiffness test.

CO4.Perform Puncture resistance of CFB.

CO5.Identify flute types in CFB

CO6.Make paper carry bags as per the standard.

Subject: Glass, Metal and Textile Based Packaging Materials Tutorials (PPL304)

CO1.Use various testing standards

CO2.Calculate capacity & dimensions for containers

CO3.Analyze Thermal shock & chemical resistance for glass bottles

CO4.Perform & Analyze coating related tests for metals used for cans

CO5.Analyze corrosion tests for metals

CO6.Conduct tests for textile based materials

SE : IV SEM (CBCS)

Subject: Plastics in Packaging (PPC401)

- CO1. Describe the various polymerization mechanisms and techniques.
- CO2. Differentiate between thermoplastics & thermosets.
- CO3. Effectively communicate the relation between effects of temperature and crystallinity of polymers.
- CO4. Identify and categorize various plastics by chemical and instrumentation methods.
- CO5. Choose a plastic material for a specific application based on their physical and chemical properties.
- CO6. Describe the properties that are important from the point of view of plastic processing.

Subject: Ancillary Packaging Materials (PPC402)

- CO1. Analyze various cushioning materials and describe their properties.
- CO2. Analyze the types of adhesives and apply the concept of adhesion in the packaging.
- CO3. Elaborate the functions of various closures and choose a closure for a specific application.
- CO4. Choose the right label for a specific packaging application.
- CO5. Analyze the types of straps & tapes and describe their application in different packages.
- CO6. Describe the significance of codings and coatings in packaging.

Subject: Colour Reproduction (PPC403)

- CO1. Summarize the Colour Vision theory and its concept.
- CO2. Discuss & summarize the conventional and digital method of colour separation.
- CO3. Examine images and modify them with colour correction.
- CO4. Measure the densitometric terms and analyze graphically.
- CO5. Summarize the spectrophotometric terms and perform relative measurements of various printed samples.
- CO6. Recognize the input & output devices being used.

Subject: Offset Printing (PPC404)

- CO1. Describe the various terminologies in offset printing process.
- CO2. Operate offset machines and evaluate single colour sheet feed press.
- CO3. Identify and rectify suitable solutions for errors associated with platemaking and pressroom.
- CO4. Analyze troubles related with quality and can produce possible remedies to minimize print problems.
- CO5. Identify the conversion technology of offset printed jobs
- CO6. Plan & Layout the imposition of commercial jobs.

Subject: Digital Electronics & Microcontrollers (PPC405)

- CO1. Describe any logical expression using basic gates.
- CO2. To examine the structure of various number systems and its application in digital design
- CO3. Discuss the combinational & sequential circuits like encoder, decoder, flip-flop, registers & counters.
- CO4. Identify features of various Microcontroller.
- CO5. Write and execute assembly language programs.
- CO6. Summarize the need and functioning

Subject: Principles of Graphic Arts and Design-II (PPL401)

- CO1. Create a Package design based on specific requirement.
- CO2. Create Ups using the editing software for given substrate dimension.
- CO3. Generate various design layouts with proper visual impacts.
- CO4. Create a design for folding carton with appropriate software.
- CO5. Edit an image and use it in a Package design
- CO6. Design a Website and Upload in Internet.

Subject: Plastic Material Testing (PPL402)

- CO1. Identify plastic material by chemical and instrumentation method.
- CO2. Perform simple tensile test on UTM.
- CO3. Determine ESCR of a plastic sample.
- CO4. Perform impact test using dart impact method.
- CO5. Determine coefficient of friction of plastic films.
- CO6. Analyze thermogram from a DSC.

Subject: Colour Reproduction Laboratory (PPL403)

- CO1. Match any two given colours under prescribed light source
- CO2. Measure density and compare with the standards.
- CO3. Analyse the colour difference between any two given printed samples
- CO4. Measure various vitals of Print quality such as Dot gain, Print contrast, Hue error & Grayness and Trapping
- CO5. Comment on Print quality based on measured values
- CO6. Suggest Corrections required to achieve better print quality

Subject: Offset Printing* (PPL404)

- CO1. Analyse the problem of printed sample & troubleshoot it
- CO2. Perform printing on single color offset printing machine
- CO3. Evaluate the number of sheets required for printing a particular job.
- CO4. Evaluate the inking & dampening system condition through testing.
- CO5. Plan & provide a dummy pack for a particular product.
- CO6. Evaluate the conversion technologies used for a commercial pack.

Subject: Digital Electronics & Microcontrollers Laboratory (PPL405)

- CO1. To demonstrate the knowledge of operation of logic gates.
- CO2. To apply Boolean theorems, DeMorgan's theorems and Karnaugh maps reduction method to simplify logic problems.
- CO3. Create the appropriate truth table from a description of a combinational logic functions.
- CO4. Demonstrate the knowledge of operation of basic types of flip-flops.
- CO5. To analyze and design digital combinational circuits including arithmetic circuits (half adder, full adder, half subtractor and full subtractor).
- CO6. Develop skill in simple program writing for 8051.

Subject: Ancillary Packaging Material Testing (PPL406)

- CO1. Determine peel / bond strength of an adhesive.
- CO2. Perform shear resistance test on tape/label.
- CO3. Determine the grammage of all components in a label.
- CO4. Determine tack of a self-adhesive tape or a label by Rolling Ball Tack Tester.
- CO5. Determine opening and closing torque for closures.
- CO6. Effectively perform strapping and taping of a CFB Box.

DEPARTMENT OF PRINTING AND PACKAGING TECHNOLOGY

SE : III SEM (CBGS)

Subject: Applied Mathematics -III (PPC301)

CO1. Obtain the Laplace Transform and inverse Laplace Transform using standard results and properties.

CO2. Apply the concept of eigen values and eigen vectors to engineering problems.

CO3. Expand the periodic functions using Fourier series and complex form of Fourier series, understand the concept of half range sine and cosine series.

CO4. Perform calculation with operators gradient, divergence and curl.

CO5. Use binomial poisson and normal distribution to solve statistical problems.

CO6. To analyse the problem by using large and small sampling theory.

Subject: Principles of Packaging Technology (PPC302)

CO1. Effectively observe and compare the different package forms.

CO2. Describe the importance of compatibility studies and their associated parameters.

CO3. Analyze the various hazards & environmental issues related to Packaging.

CO4. Predict the application packaging technology as a whole.

CO5. Analyze the various hazards & environmental issues related to packaging

CO6. Explain significance of packaging in terms of today's market

Subject: Introduction to Printing Technology (PPC303)

CO1. Distinguish various printing principles like planography, intaglio & relief.

CO2. Compare the process of image generation on the basis of typography, reprography & layouting.

CO3. Distinguish the various press configurations of offset, gravure, flexo & letterpress.

CO4. Recognize various materials used in printing operations and distinguish print finishing operations

CO5. Explain various types of ink available for printing and their properties.

CO6. Select an appropriate printing technology for any given printing job.

Subject: Paperbased Packaging Materials(PPC304)

CO1. Explain the raw materials and operations involved in pulping and paper making process

CO2. Identify and describe the manufacturing process for different types of paper based

CO3. Design and estimate material requirements for major forms of paper based packaging.

CO4. Test and analyze the major properties of paper based packaging materials.

CO5. Explain various design aspects for various types of package forms made up of paper

CO6. Explain various quality control & testing procedures for paper package

Subject: Principles of Graphic Arts and Design (PPC305)

CO1.Create a design based on specific requirement.

CO2.Analyze and demonstrate the use of particular colour & text appropriately in the designs.

CO3.Generate various design layouts with proper visual impacts.

CO4.Create a design with different softwares used for designing purpose.

CO5.Identify the tools involved in recreating a design

CO6.Examine the process involve in desinging a job

Subject: Material Science and Technology (PPC306)

CO1.Point out effectively various materials and their feasible applications involved in packaging & printing technology.

CO2.Explain the materials on the basis of their chemistry.

CO3.Identify and examine various significant properties required for a specific material for a particular application.

CO4.Explain electrical, magnetic and chemical properties of materials used in Printing and packaging industry.

CO5.Analyse any given material through advanced technologies like SEM

CO6.Discuss the role of smart and nano materials in Packaging and printing industry.

Subject: Screen Printing Laboratory (PPL301)

CO1. Prepare screen printing image carrier by direct, indirect photographic methods.

CO2. Demonstrate the use of different photographic films for mesh preparation according to image.

CO3. Produce different printed samples for various substrates like fabric, glass, acrylic, wood by selecting suitable inks & coatings for that material.

CO4. Produce & analyze a halftone dot image generated for four color printing and registration of color.

CO5. Familiarize with equipment and chemicals used for screen printing

CO6.Printing of two color job on textile and paper materials

SE : IV SEM (CBGS)

Subject: Plastics in Packaging (PPC401)

- CO1. Describe the various polymerization mechanisms and techniques.
- CO2. Differentiate between thermoplastics & thermosets.
- CO3. Effectively communicate the relation between effects of temperature and crystallinity of polymers.
- CO4. Identify and categorize various plastics by chemical and instrumentation methods.
- CO5. Choose a plastic material for a specific application based on their physical and chemical
- CO6. Describe the properties that are important from the point of view of plastic processing.

Subject: Glass, Metal and Textile Based Packaging (PPC402)

- CO1. Describe & interpret the various manufacturing process for glass bottles, metal cans & tubes and textile based bags.
- CO2. Explain various design aspects for various types of package forms made up of glass & metal.
- CO3. Summarize the aerosol technology and its wide application in packaging.
- CO4. Discuss various quality control and testing procedures for these package forms
- CO5. Describe the basics of fabric & textile tech. to produce bags of various materials.
- CO6. Analyse the packages made of Glass, metal & textiles for operations involved.

Subject: Digital Imaging & Colour Management (PPC403)

- CO1. Discuss & summarize the conventional and digital method of colour separation.
- CO2. Examine images and modify them with colour correction.
- CO3. Measure the densitometric terms and analyze graphically for printed samples.
- CO4. Summarize the spectrophotometric terms and perform relative measurements of various printed samples.
- CO5. Recognize the input & output devices being used.
- CO6. Analyze input & output devices, create profiles and demonstrate their results.

Subject: Offset Printing (PPC404)

- CO1. Describe the various terminologies in offset printing process.
- CO2. Operate offset machines and evaluate single colour sheet feed press.
- CO3. Identify and rectify suitable solutions for errors associated with platemaking and pressroom.
- CO4. Analyze troubles related with quality and can produce possible remedies to minimize print problems.
- CO5. Analyze the costing of commercial printing jobs
- CO6. Examine the process involve in manufacturing and finishing the products

Subject: Digital Electronics and Microprocessor (PPC405)

CO1.Describe any logical expression using basic gates

CO2.Discuss the combinational & sequential circuits like encoder, decode.

CO3.Discuss the sequential circuits like flip-flop, registers & counters.

CO4.Summarize the need and functioning of microprocessor in various machines of packaging and printing technology.

CO5.Describe 8086 architecture and programming.

CO6.Analyse possible applications of microprocessors in various machines of packaging and printing technology.

DEPARTMENT OF PRINTING AND PACKAGING TECHNOLOGY

TE : V SEM (CBGS)

Subject: Plastic Processing and Conversion Technologies (PPC501)

- CO1. Describe the fundamental concepts in plastic processing and conversion technology.
- CO2. Analyse the various plastic materials and its application
- CO3. Understand and use suitable conversion technique as per the end product
- CO4. Produce plastic products by using various conversion techniques
- CO5. Perform different testing methods for plastic product
- CO6. Study different processing parameters required in industry

Subject: Gravure Printing(PPC502)

- CO1. Describe the various components of gravure printing machine and its functions.
- CO2. Explain various design aspects gravure cylinder and the process of engraving it.
- CO3. Summarise the various operations performed while printing on Gravure machine
- CO4. Discuss various inks and substrates used for gravure process with quality control measures.
- CO5. Describe various web handling and registration control for gravure printing
- CO6. Discuss various inks and substrates used for gravure process.

Subject: Ancillary Packaging Materials (PPC503)

- CO1. Perform the main testing procedures and understand the requirements for testing ancillary packaging materials.
- CO2. Choose and design packaging solutions with respect to the right ancillary material for the target product/package.
- CO3. Elaborate the properties and functions of various ancillary materials.
- CO4. Choose the right label for a specific packaging application.
- CO5. Analyze the types of straps & tapes and describe their application in different packages.
- CO6. Describe the significance of codings and coatings in packaging.

Subject: Theory of Machines and Designs(PPC504)

- CO1. Analyse the stresses and strains in mechanical components, and understand, identify and quantify failure modes for mechanical parts
- CO2. Describe the basic machine elements used in machine design.
- CO3. Design machine elements to withstand the loads and deformations for a given application, while considering additional specifications.
- CO4. Develop the approach to design the component under realistic conditions.
- CO5. Design Machine element against static loading
- CO6. Develop the ability to design the component under realistic conditions.

Subject: Instrumentation and Process Control (PPC505)

CO1. Knowledge of measuring devices and signal conditioning will help students to select the correct transducer as per the requirement.

CO2. Students will be able to confidently design a PID controller using opamps or through MATLAB program.

CO3. The understanding of applications of PLC's in latest printing machines and also packaging machines will be developed.

CO4. Understanding applications of PLC's in industries and printing and packaging machines

CO5. To explain PLC and SCADA systems and their use in process control

CO6. To Understand and formulate various applications like DAS and data logger

Subject: Communication and Corporate Skills (PPS501)

CO1. Write a technical report in specific format.

CO2. Write a technical proposal in specific format.

CO3. Use interpersonal skills effectively and enhance communication.

CO4. Prepare the Notice, Agenda and Minutes of a formal meeting.

CO5. Understand the importance of ethics and apply it for their career advancement.

CO6. Understand employment skills and prepare a resume along with the skills required to face an interview

TE : VI SEM (CBGS)

Subject: Packaging Machineries and Systems (PPC601)

- CO1.Suggest the packaging material use and its conversion as per the product geometry.
- CO2.Suggest the filling machine required for the line operations.
- CO3.Choose the ancillary machineries required in the line operations based on the product to be packed
- CO4.Analyse the different conveying system used for various line operations
- CO5.Select different online and offline testing methods that are required during the converting operations or on the packaging lines.
- CO6.Suggest Methods and Machine used for case packing.

Subject: Food and Pharmaceutical Packaging (PPC602)

- CO1.Analyse and choose a barrier material for a specific food product based on barrier properties studied
- CO2.Analyse and choose a preservation method for a specific food product based product sensitivity and shelf life required.
- CO3.Describe the various characteristics of pharmaceutical drugs and their sensitivities
- CO4.Select the right type of package form for a pharma product, based on the product nature, form & size.
- CO5.Determine the shelf life of given food and develop the technique to improve the same.
- CO6.Develop a pharmaceutical package to increase the stability of the medicine during its storage.

Subject: Industrial Products Packaging (PPC603)

- CO1.Effectively choose packaging materials based on characteristics of industrial products.
- CO2.Describe the various properties & defects of wood packaging material
- CO3.Analyze the various hazards & environmental issues related to Packaging and select a specific protection method for the product.
- CO4.Choose various bulk carriers for industrial packaging based on the type of product.
- CO5.Analyse various types of internal fitments for product protection and retainment.
- CO6.Explain the characteristics and applications of various wooden package forms.

Subject: Flexographic Printing (PPC604)

- CO1.Learners develop ability to operate flexography machine.
- CO2.Learners acquire skills to handle trouble shoot on flexography presses.
- CO3. Learners will be able to identify press type & configuration.
- CO4.Learners will be able to discuss the merits & demerits of press types & structural variants.
- CO5.Learner will be able to Analyse the ink & Subtrate for any print job.
- CO6.Learners will describe the Quality control, Environmental & safety tools & regulations available.

Subject: Packaging Distribution Dynamics (Elective I) (PPE601)

CO1. Analyse the hazards encountered in distribution and determine protection requirement

CO2. On the basis of principles of distribution dynamics estimate the vibration, shock encountered by a product in distribution

CO3. Calculate cushioning requirement for a product in distribution.

CO4. Perform tests to gauge package performance in distribution.

CO5. Analyse ways to reduce the effect of vibration, shock and handling of product during distribution.

CO6. Explain the method for developing the cushion curve and damage boundary curve.

Subject: Inks and Coatings (Elective I) (PPE602)

CO1. Explain the formulation for different types of inks

CO2. Explain the ink components for different printing processes and materials

CO3. Test and analyze the properties of inks and coatings.

CO4. Suggest ink for a given process

CO5. Troubleshoot problems related to ink synthesis

CO6. Suggest suitable varnish for a given application.

Subject: Security Printing (Elective I) (PPE603)

CO1. Analyse & describe the Digital image anatomy for Pre-press environment.

CO2. Analyse & describe the concepts in digital printing with its Merits & De-merits.

CO3. Summarise the process involved in Digital work-flow & data handling.

CO4. Elaborate the importance of security printing with respect to use in everyday life.

CO5. Describe first line inspection of different documents & Creation of various security devices.

CO6. Discuss the significance of Brand protections and tools available.

Subject: Print Finishing and Converting (Elective I) (PPE604)

CO1. Analyze the print finished product.

CO2. Examine the Product for the entire process involved in manufacturing and finishing.

CO3. Discuss the print finishing requirements for variety of different segment jobs.

CO4. Analyze the layout and imposition of the job

CO5. Identify and rectify post finishing process problems

CO6. Discuss the various post finishing terminology

Subject: Package Design and Graphics (PPL601)

- CO1. Define basic design terminology,
- CO2. Identify and apply the available design tools using various CAD softwares
- CO3. Identify and apply the available design tools using various CAD softwares
- CO4. Create Graphics Design for folding cartons/Plastic containers
- CO5. Analyze various package design
- CO6. Design an artwork/graphics for a label

Subject: Industrial Visit (PPS601)

- CO1. Analyze the print, packaged, converted & finished product
- CO2. Examine the Product for the entire process involved in manufacturing, converting and finishing.
- CO3. Understand operational workflows for various Industries.
- CO4. Analyse Plant Layout, Inventory & Logistics provisions.
- CO5. Understand the Organisational structure and Manpower requirements.
- CO6. Discuss the Safety-Health-Environmental practices, Laws, Regulations & Certifications found in the Industry.

DEPARTMENT OF PRINTING AND PACKAGING TECHNOLOGY

BE : VII SEM (CBGS)

Subject: Sustainable Packaging (PPC701)

- CO1. Describe the need & scope of sustainability in a process, product/package or equipment.
- CO2. Describe & analyze the metrics & LCA for packaging sustainability.
- CO3. State explain the various waste management systems.
- CO4. Describe the need of biopolymers & biobased polymers in sustainable economy.
- CO5. Identify various materials preferred to be sustainable.
- CO6. Describe the need of Bio-Polymers and bio-based polymers in sustainable economy

Subject: Packaging Laws and Regulations(PPC702)

- CO1. Summarize the rules and regulations with respect to packaging in India and their impact in the domestic market.
- CO2. Identify and compare the international laws with relation to packaging.
- CO3. Examine the labels and identify the regulation involve in it.
- CO4. Discuss the regulatory act requirement for verity of different segment commodities.
- CO5. Identify and rectify process involove in regulatory act.
- CO6. Discuss the various indian reguatory act required for food/pharma labels.

Subject: Packaging Distribution Logistics (PPC703)

- CO1. Analyse the usage Unit Load Devices for their & application ofwrt Product-Package nature.
- CO2. Discuss the Palletisation, containerisation & their varients.
- CO3. Discuss & compare the Supply chain Management and Logistcs element.
- CO4. Describe the Logistics elements like Invenry, Transportation modes, Warehousing & Material Handling.
- CO5. To explain and perform transport worthiness tests for a given package.
- CO6. Describe the role of retailing in packaging industry.

Subject: Total Quality Management and Economics(PPC704)

- CO1. List and explain various TQM Tools
- CO2. Describe & compare various theories on Total Quality
- CO3.3. Implement quality tools for continuous improvement
- CO4. Analyze the concept of House of Quality
- CO5. Identify the scope of Six Sigma, ISO and Quality systems in industrial scenario
- CO6. Estimate the cost for various packaging & printing materials, processes and equipments

Subject: Project Management and Entrepreneurship (PPC705)

CO1. Identify the problem and select the project.

CO2. Plan the project using different tools.

CO3. Define Budget and estimate the cost of project.

CO4. Identify the risks involved and assess uncertainty and risk management.

CO5. Explain the components of the product business and pre feasibility studies for the entrepreneurship development.

CO6. Apply the entrepreneurship skills for product launching and incubation.

Subject: Advanced Food Packaging (Elective II) (PPE701)

CO1. Choose a packaging material with suitable permeability value as required.

CO2. Describe & perform the migration analysis for packaging materials.

CO3. Evaluate the shelf life of packaged food product.

CO4. Describe the filling system & suggest a suitable one on the basis of product need.

CO5. Apply concepts of microbial inactivation for retort & aseptic packaging

CO6. Develop an active and intelligent package for perishable food

Subject: Advanced Industrial Products Packaging (Elective II) (PPE702)

CO1. Effectively choose packaging materials based on characteristics of industrial products.

CO2. Describe the various properties & defects of wood packaging material

CO3. Analyze the various hazards & environmental issues related to Packaging and select a specific protection method for the product.

CO4. Choose various bulk carriers for industrial packaging based on the type of product.

CO5. Design various internal fitments and wooden packages based on a given industrial product requirement.

CO6. Optimize the utilization of packages and selection of materials to effectively save cost.

Subject: Labelling Technology (Elective II) (PPE703)

- CO1. Define and identify different types of labels and their apt applications.
- CO2. Explain and Compare the different types of labels, their features and manufacturing process.
- CO3. Explain the process of printing, finishing and applying labels on the packs.
- CO4. Select a type of label and material based on the package type.
- CO5. Design the labels of all types along with the compensations.
- CO6. Describe the new trends in the labelling industry.

Subject: Seminar (PPS701)

- CO1. To examine package forms, materials, print, graphics, labels, etc. and develop in them a “why” curiosity
- CO2. To delve in a specific area of Packaging & Printing and learn the science & technology behind that process/product in detail.
- CO3. To design questionnaires, collect data, perform analysis and prepare a report.
- CO4. To write a review paper based on available white papers or research papers.
- CO5. To present the data collected, analysed and concluded in cogent manner.
- CO6. To apply/ experiment the theoretical inputs in practical arena.

BE : VIII SEM (CBGS)

Subject: Professional Internship (PPI801)

CO1.Exhibit the corporate culture/ethics in their work space/career.

CO2.Accomplish allotted tasks within deadlines

CO3.Learn problem solving techniques and also work as a team.

CO4.Apply the knowledge learnt in their career.

CO5.Analise and identify his or her area of interest, will establish association with the same.

CO6.Make systematic documentation or report writing of workdone.

Subject: Project (PPP801)

CO1. To get acquainted with the process of undertaking literature survey

CO2. To get acquainted with identifying a problem

CO3. To get familiarized the process of problem solving in a group

CO4. To get acquainted with the process of applying basic engineering fundamental in the domain of practical applications

CO5. To inculcate the process of research

CO6. To Correlate the theoretical and experimental results and draw the proper inference