

6th Semester		Plastic Packaging Technology	L-T-P 3-0-0	3 Credits
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MODULE - I**Introduction to plastic packaging****(8 hours)**

Introduction to plastics packaging: functions of packaging, advantages of plastic packaging, distribution hazards, special requirements of food and medical packaging, packaging legislation and regulation. Packaging as a system: Elements, approach, package, design, relation criteria for packaging materials, packaging equipment checklist, case histories Major packaging plastics Introduction – PE, PP, PS, PVC, polyesters, PVA, EVA, PA, PC, ionomers & fluoro polymers.

MODULE - 2**Conversion process****(9 hours)**

Conversion process – Compression & transfer for moulding, Injection moulding, Blow moulding, Extrusion, roto moulding, thermoforming, Lamination, metallizing, decoration process, Shrink wrapping, Pallet & stretch wrapping, sealing methods, Plasma barrier coatings. Energy requirement for conversion

MODULE - 3**Flexible packaging****(9 Hours)**

Extrusion, film and flexible packaging – extrusion, cast film & sheet, Blown film, Multi layer film & sheet coatings, laminations & co-extrusions, stretch and shrink wrap, pouching, sealing, evaluation of seals in flexible packages, advantages of flexible packaging – flexible packaging products. Specialized packaging for food products.

MODULE - 4**Decoration Processes****(10 Hours)**

Cutting, sealing, welding, adhesive bonding, Printing, metallising, embossing, labelling, painting, lacquering, foil in lay moulding, hot stamping, In-mould decoration.

Packaging & Hazardous & their controls: Types – static charge problems, damaging factors & effects Pollution factors, Toxicity of Materials.

MODULE - 5**Evaluation of plastic packages****(9 hours)**

Physical characteristics of product – physical state, weight, center of gravity, symmetry, fragility, rigidity, surface finish, etc.

Physico-chemical characteristic – susceptibility to water, water vapour, gases, odour, heat, light – mechanism of spoilage.

Principles of corrosion & prevention.

Compatibility – permissible plasticizers in plastics & coating media, their migration to food – can lining compounds & lacquers for containers for fruit & vegetables, fish, meat & other products.

Package design – factors influencing design / productpackage relationship. Role of nano technology in packaging.

Books

1. Susan E.M. Seleke, Understanding plastic packaging Technology, Hanser publications – Munich
2. A.S. Altalye, Plastics in packaging, Tata McGraw – Hill publishing Co. Ltd., New Delhi.
3. Briston; John H. and Katan; Leonard L., Plastics in Contact with Food, Food Trade Press Ltd., London (1974).
Briston; John, Advances in Plastics Packaging, Pira International, Leatherhead (1992).