BANGLADESH TECHNICAL EDUCATION BOARD

4-YEAR DIPLOMA-IN-ENGINEERING

PROGRAM

FOOTWEAR TECHNOLOGY (698)

SYLLABUS
FOURTH SEMESTER

FOOTWEAR TECHNOLOGY (698)
FOURTH SEMESTER

Sl No	Sub. Code	Name of the Subject	T	P	C	Marks				Total
						Theory		Practical		
						TC	TF	PC	PF	
1	69841	Footwear Manufacture - III	3	3	4	60	90	25	25	200
2	69842	Synthetics and Accessories Materials	3	3	4	60	90	25	25	200
3	69843	Footwear Health & Hygiene	2	0	2	40	60	-	-	100
4	69844	Polymer Science- I	2	3	3	40	60	25	25	150
5	69054	Environmental Studies	2	0	2	40	60	-	-	100
6	65851	Accounting Theory And Practice	2	3	3	40	60	50	-	150
	Total		**14**	**12**	**18**	**280**	**420**	**125**	**75**	**900**

69841	FOOTWEAR MANUFACTURE - III	T	P	C
		3	3	4

OBJECTIVES

- To acquire knowledge on closing technology and various types of seam.
- To learn about decorative and subsidiary stitching operation.
- To gather knowledge on pre-lasting, lasting, upper and sole assembly operation.

SHORT DESCRIPTION:

Student will be able to learn about importance and different systems of foot measurement. They will also be able to know shoe sizing, shoe fitting and multi-fitting, closing technology, various seams, decorative and subsidiary stitching operations, pre-lasting and lasting operation.

DETAIL DESCRIPTION

Theory:

1. Understand the closing technology.

1.1 Definition of Closing, preparatory or bench operations.
1.2 State various bench operations and their various applications.
1.3 Define skiving and illustrate various types of skiving
1.4 Describe the skiving technique of toe puff and counter stiffener.
1.5 Define and mention the purposes of splitting.
1.6 State stitch marking, notch marking and stamping.
1.7 Describe Fitting (Flat Fitting, Block Fitting, Holding Together);
1.8 Discuss the types of Stitches - Lock stitch, Chain stitch and decorative stitches.
1.9 Set thread into the sewing machine.

2. Understand the seam and its types.

2.1 Define stitch, sew and seam
2.2 Describe the classification of seams.
2.3 Explain closed seam, open seam, French seam, Brooklyn seam, lapped seam, butted seam, welted and pipe seams.
2.4 State various types of moccasin seams
2.5 Define and classify edge and top line treatments.
2.6 State various types of edge and top line treatments.
2.7 Illustrate various types of sewing faults and their remedies.

3. Understand the decorative operations.

3.1 State screen print, block print and foil print
3.2 Describe various decorative and fancy Stitches and their applications in shoe upper.
3.3 Illustrate various embroidery, boutiques and butique techniques.
3.4 State heat embossing and flow moulding.
3.5 Describe cable stitching, top stitching cording and pin tucking.

4. Understand the subsidiary stitching.

4.1 Define Subsidiary Stitching
4.2 State boxing, barring and derby lock.
4.3 Explain the procedure of beading, seam forming and top line forming.
4.4 State the procedure of lining trimming, eyeleting and Lacing.
4.5 Describe the procedure of quality checking.

4.6 Describe sequence of operations for basic Oxford, Derby, Men's Chappal, Men's sandals, Children sandal and ladies sandals.

5. Understand the insole and bottom Stock Preparation.

5.1 State the various techniques of insole preparation
5.2 Describe the procedure of shank board preparation.
5.3 Describe the procedure of edge beveling of shank board.
5.4 State the techniques of shank fixing.
5.5 Illustrate the process of shank board and insole attaching.
5.6 State the edge beveling of insole.
5.7 Explain the insole moulding techniques.
5.8 State the preparation of blended insole, flexible and ribbed insole.

6. Understand the pre- lasting operations.

6.1 Mention the pre-lasting operations and define them.
6.2 Outline the purpose of back part moulding, toe puff attaching, upper and lining lamination, feather edge stitching, insole attaching and upper conditioning.
6.3 Describe the various ways of counter stiffener and toe puff attaching.
6.4 Describe the procedure and process control of back part moulding and toe puff attaching.
6.5 Describe the techniques of upper and lining lamination.
6.6 Define upper conditioning and mention its types.
6.7 State the various types of upper conditioning process.
6.8 Describe the toe puff and counter stiffener problems with their remedies.

7. Understand the lasting

7.1 Define lasting
7.2 Give the purpose of lasting operations.
7.3 Mention the basic types of lasting methods and their applications.
7.4 Illustrate flat lasting, ribbed lasting, pre-welted lasting, lasting up, force lasting and string lasting.
7.5 Outline the basic principal of lasting operations.
7.6 Mention the mechanism of lasting operation.
7.7 State the sequential procedure of manual lasting.
7.8 State the important tooling of toe and fore part lasting.
7.9 State the pulling cycle of toe and fore part lasting.
7.10 State the important tooling of seat and side lasting.
7.11 Sate the pulling cycle of seat and side lasting.
7.12 Depict the trouble shooting of toe and fore part lasting operation.
7.13 Depict the trouble shooting of seat and side lasting operation.

8. Understand the upper and sole assembly.

8.1 Mention the post lasting operations.
8.2 Define heat setting
8.3 Mention the purposes of heat setting operations.
8.4 Describe various types of heat setting operation with their merits and demerits.
8.5 State cement/ stuck-on constructions with merits and demerits
8.6 Define and classify surface preparation.
8.7 Mention the necessity of surface preparation.
8.8 Explain roughing, scouring, solvent wiping ad priming.
8.9 Distinguish between roughing and scouring
8.10 Contrast between solvent wiping and priming

8.11 Define and classify shoe construction.
8.12 Distinguish between direct and indirect shoe constructions.
8.13 Define heat reactivation and mention its purposes.
8.14 State the procedure of heat reactivation with process control.
8.15 Describe the procedure of sole press with process control.
8.16 Depict the sequence of operations of cement/stuck-on constructions.

Practical:

1. Skive the upper and lining components.
2. Skive the bottom and insole components.
3. Prepare the edge folding of upper components.
4. Prepare the edge colouring of upper components.
5. Determine the edge and top line preparation of upper components
   - 5.1 Raw edge
   - 5.2 Burnished edge
   - 5.3 Folded edge top line
   - 5.4 Binded edge top line
   - 5.5 Ghillie top line
   - 5.6 Back top line
6. Determine the decorative operation of upper components.
   - 6.1 Screen print
   - 6.2 Block print
   - 6.3 Embossing
   - 6.4 Texture print
   - 6.5 Boutique
   - 6.6 Butique
7. Determine the assembly and stitching of basic Ladies sandals upper and lining.
8. Determine the assembly and stitching of basic Gents sandals upper and lining.
9. Determine the assembly and stitching of basic Baby sandals upper and lining.
10. Determine the assembly and stitching of basic baby shoe upper and lining.
11. Determine the assembly and stitching of basic Court shoe upper and lining.
12. Determine the assembly and stitching of basic Oxford shoe upper and lining.
13. Determine the assembly and stitching of basic Derby shoe upper and lining.
14. Determine the assembly and stitching of basic casual shoe upper and lining.
15. Determine the preparation of runner for ladies, gents and baby sandals
16. Determine the preparation of insole for court, Oxford, Derby and Casual shoe.
17. Determine the assembly of lasted upper and sole of basic Court shoe.
18. Determine the assembly of lasted upper and sole of basic Oxford shoe.
19. Determine the assembly of lasted upper and sole of basic Derby shoe.
20. Determine the assembly of lasted upper and sole of basic Casual shoe.

Reference Books:

1. Somenath Ganguly -Comprehensive Footwear Technology" ILTA, Kolkata Publication.
2. R. G. Miller -Manual of shoe making
3. Venkatappaiah B- introduction to the modern footwear technology.
4. Thornton J. H.-Text book of footwear manufacturing
5. Swayan Siddha- The skill of seam reducing.
6. J. H. Harvey- Footwear process technology
7. Foot Last Footwear: Structure, types and defects. Noor Mohammad, COEL & LFMEAB, Dhaka.

69842	Synthetics and Accessories Materials	T	P	C
		3	3	4

OBJECTIVES

- To understand the basic concepts of synthetics and accessories materials.
- To acquire knowledge on the basic concepts and principles of properties of materials.
- To understand about various synthetics materials and components used in footwear manufacturing.
- To characterize and apply the various synthetic upper materials for making shoe upper.
- To select suitable soling materials for footwear manufacturing.
- To understand about various types of insole, heel, shoe lace and threads used in footwear manufacturing.

SHORT DESCRIPTION

Students will be able to learn about different synthetic and accessories materials and their characterization and applications for making different types of footwear. They will also be able to develop skill on the selection and application of bottom materials, insole, heel, thread and shoe lace.

DETAIL DESCRIPTION

Theory:

1. **Understand the synthetic upper materials.**
   - 1.1 Define synthetic upper materials
   - 1.2 State the ideal properties of synthetic upper materials.
   - 1.3 Describe the influence of temperature and humidity on synthetic upper materials.
   - 1.4 List out the types of synthetic upper materials.
   - 1.5 Describe the construction of woven and knitted fabrics.
   - 1.6 Identify PVC coated fabrics and PU coated fabrics.

2. **Understand the synthetic soling materials.**
   - 2.1 Define synthetic soling materials.
   - 2.2 State the purposes of synthetic soling materials.
   - 2.3 State the types of synthetic soling materials.
   - 2.4 Describe the properties and uses of vulcanized rubber (VR).
   - 2.5 Describe the properties and uses of microcellular rubber (MR).
   - 2.6 Describe the properties and uses of resin rubber (RR).
   - 2.7 Describe the properties and uses of Polyvinyl chloride (PVC).
   - 2.8 Describe the properties and uses of ethylene vinyl acetate (EVA).
   - 2.9 Describe the properties and uses of polyurethane (PU).
   - 2.10 Describe the properties and uses of thermoplastic rubber (TPR).

3. **Understand the insole materials**
   - 3.1 Define insole.
   - 3.2 State the properties of insole materials.
   - 3.3 Mention the types of insole materials.
   - 3.4 Outline the raw materials for insole.

3.5 Describe the manufacturing procedure of insole materials- fiber board, leather board, cellulose board, impregnated non-woven's.
3.6 Make comparisons of difference insole materials, plastics, comparisons of insole materials.
3.7 State the selection criteria of insole for shoe making
3.8 Describe the preparation technique of insole for shoe making.

4. **Understand the synthetic threads.**
4.1 Define threads.
4.2 List out the types of threads.
4.3 State the use of thread.
4.4 Describe the ideal properties of sewing threads.
4.5 Describe the thread faults and their effects on footwear.
4.6 Describe the synthetic thread construction.
4.7 Compare between natural and synthetic thread.
4.8 Describe the thread consumption techniques.

5. **Understand the shoe lace**
5.1 Define shoe lace.
5.2 State the purposes of shoe lace.
5.3 List out the types of shoe lace.
5.4 Describe the ideal properties of shoe lace.
5.5 State the advantages and disadvantages of various types of shoe lace.

6. **Understand and use the accessories**
6.1 Define **accessories**
6.2 List out the types of **accessories**.
6.3 Sate the purpose of trims and appliques.

7. Understand the heels
7.1 Define heels.
7.2 State the purposes of heel.
7.3 List out the types of heel.
7.4 State the selection criterions of heel for footwear manufacturing.
7.5 Describe the heel manufacturing techniques.
7.6 Describe the advantages and disadvantages of various types of heel

Practical

1 Identify the different types of synthetic upper materials.
2 Identify the different types of synthetic soling materials.
3 Characterize the different types of lining materials.
4 Determine the proper selection of different types of shoe laces.
5 Select and apply the right accessories.
6 Identify different types of thread.
7 Identification of different insole materials.

Reference Books

1. Introduction to the Modern Footwear Technology by Venkatappaiah B.
2. Manual of Shoe Making by R. G. Miller (Editor)
3. Boot and Shoe Production by J Korn. (Editor)
4. Text Book of Footwear Manufacture by J. H Thornton.
5. Making Shoes by Ruth Thomson
6. Product Knowledge by Swayam Siddha
7. Text Book of Footwear Materials by J. H Thornton.

69843 FOOTWEAR HEALTH AND HYGIENE T P C
2 0 2

OBJECTIVES:

1. To develop the basic knowledge about footwear health and hygiene.
2. To familiarize with the proper foot care.
3. To acquire knowledge on the basic rules for foot hygiene.
4. To develop the knowledge on the toe nail care.
5. To familiarize with foot comfort.
6. To gather knowledge on proper care of diabetic feet.
7. To develop knowledge and skills to assess changes in feet.
8. To acquaint with the daily foot inspection.

SHORT DESCRIPTION:

To understand the basic knowledge about footwear health and hygiene, familiarize with the proper foot care, acquire knowledge on the basic rules for foot hygiene and toe nail care. To know the basic of foot comfort, gather knowledge on proper care of diabetic feet, develop knowledge and skills to assess changes in feet and to acquaint with the daily foot inspection.

Theory:

1. Understand the foot and footwear hygiene.

1.1 Define foot and footwear hygiene.
1.2 Describe the basic rules for foot hygiene.
1.3 State the way to practice good foot hygiene.
1.4 Define the guidelines for proper footwear hygiene.

2. Understand the foot care in relation with footwear health and hygiene.

2.1 Define foot care.
2.2 State the guidelines for daily foot care.
2.3 Describe about toe nail care.
2.4 Explain about the daily foot inspection.
2.5 State the way to assess changes in feet (normal and abnormal).
2.6 State the proper guidelines for the care of diabetic feet.
2.7 Describe the way to read foot print.

3. Understand the Foot Comfort in relation with footwear.

3.1 Define foot comfort
3.2 Describe the classification of foot comfort.
3.4 State the forces & pressures on foot comfort.
3.5 Explain the general & technical parameters for foot comfort.

4. Understand the last and design for foot and footwear health & Comfort.

4.1 Define foot and footwear health.
4.2 Define the effect of last development in foot comfort.
4.3 Describe the effect of shoe designing in relation with foot and footwear health.
4.4 State the relation between foot comforts with footwear design.

5. Understand the Materials in relation with Foot and footwear hygiene.

5.1 State the principle of material selection to ensure footwear hygiene.

5.2 Describe the effect of upper materials in foot and footwear hygiene.

5.3 Describe the effect of bottom materials in foot & footwear hygiene.

5.4 State the effect of accessories materials in foot & footwear hygiene.

6. Understand the Shoe Engineering in ensuring Foot and footwear health and Comfort.

6.1 Define the shoe engineering for foot comfort and hygiene.

6.2 State the effect of different shoe constructions in foot Comfort.

6.3 Describe the effect of breeze technology in foot and footwear health.

7. Understand the Shoe contact dermatitis by wearing wrong footwear.

7.1 Define the shoe contact dermatitis.

7.2 Mention different shoe contact dermatitis caused by wrong footwear.

7.3 State the cause of shoe contact dermatitis.

7.4 Explain the symptom of shoe contact dermatitis.

7.5 Describe the diagnosis system of shoe contact dermatitis.

REFERENCE BOOKS

1. Manual of Shoe Making by R.G. Miller
2. Text book of Footwear manufacture by J.H.Thornton.
3. Introduction to the Modern Footwear Technology by B.Venkatappaiah.
4. Professional Shoe Fitting by William A.Rossi and Ross Tennant.
5. Great feet for life: Foot care and Footwear for healthy aging by Paul Langer.
6. www.ganter.de
7. www.ipfh.org
8. www.aofas.org
9. www.thehealthsite.com
10. www.dermnetnz.org

69844	Polymer Science- I	T	P	C
		2	3	3

OBJECTIVES

- To know about the fundamentals of polymeric materials.
- To know about the classification of polymeric materials and different polymerization techniques.
- To know about the structure and properties of various types of polymeric materials.
- To acquire knowledge about polymeric materials used in footwear manufacturing industry.
- To develop skill for identifying the polymeric materials.

SHORT DESCRIPTION

Student will be able to learn about monomer, polymer, classifications of polymer, structure of polymeric materials, different polymerization techniques, polymer processing, various polymeric materials and identifying different polymeric materials used in footwear industries, uses, advantages and disadvantages of different polymeric materials.

DETAIL DESCRIPTION

Theory :

1. **Understand the fundamentals of polymer:**
   - 1.1 Define monomer, repeating unit, polymer, macromolecules, micro molecules, oligomer, degree of polymerization, molecular weight and distribution.
   - 1.2 State the historical developments of polymeric materials.
   - 1.3 List out the types of polymer based on origin of source, mode of synthesis, composition, chemical structure, chain formation, polarity and ultimate form and uses
   - 1.4 To differentiate between thermoplastic and thermosetting polymer.
   - 1.5 State the concept of molecular weights in polymer.
   - 1.6 State tacticity and various types of tacticity (isotactic, syndiotactic, atactic).

2. **Understand the Structure of polymeric materials:**
   - 2.1 Define isomerism.
   - 2.2 State the types of isomerism.
   - 2.3 State the properties of polymer molecules.
   - 2.4 State geometric isomerism and classify different types of geometric isomerism.
   - 2.5 Describe the geometric structure- linear, branched and cross linked polymers, random, alternating, block and graft copolymer.
   - 2.6 Describe the cis and trans configuration of geometric isomerism.

3. **Understand the polymeric materials:**
   - 3.1 Define polymeric materials.
   - 3.2 State the types of polymeric materials.
   - 3.3 To differentiate between low density polyethylene (LDPE) and high density polyethylene (HDPE).
   - 3.4 State the properties, preparation and applications of low density polyethylene **(LDPE**) and high density polyethylene **(HDPE)**.
   - 3.5 State the properties, preparation and applications of polystyrene.
   - 3.6 State the properties, preparation and applications of acrylonitrile-butadiene-styrene copolymers **(ABS)**.
   - 3.7 State the properties, preparation and applications of acrylic polymers.
   - 3.8 State the properties, preparation and applications of polyesters.
   - 3.9 State the properties, preparation and applications of poly vinyl chloride **(PVC)**.
   - 3.10 State the properties, preparation and applications of polyurethane **(PU)**.

4. **Understand polymerization and polymerization techniques:**
    - 4.1 Define polymerization, polymerization techniques, initiator, and inhibitors.
    - 4.2 State the types of polymerization techniques.
    - 4.3 State the types of polymerization reactions.
    - 4.4 Describe the steps of chain polymerization techniques.
    - 4.5 To differentiate between addition and condensation polymerization.
    - 4.6 State the properties, process, advantages and disadvantages of bulk polymerization.
    - 4.7 State the properties, process, advantages and disadvantages of solution polymerization.
    - 4.8 State the properties, process, advantages and disadvantages of suspension polymerization.
    - 4.9 State the properties, process, advantages and disadvantages of emulsion polymerization.

5. **Understand the polymer processing:**
    - 5.1 Define polymer processing, polymer compounding, plastics, elastomers, fibers, virgin resins.
    - 5.2 List out the types of polymer processing.
    - 5.3 Sate the process of resin compounding.
    - 5.4 Describe the calendaring processing techniques with figure and its application.
    - 5.5 Describe the die casting processing techniques with figure and its application.
    - 5.6 Describe the rotational casting processing techniques with figure and its application.
    - 5.7 Describe the film casting processing techniques with figure and its application.
    - 5.8 Describe the blow moulding processing techniques with figure and its application.
    - 5.9 Describe the compression moulding processing techniques with figure and its application.
    - 5.10 Describe the thermoforming processing techniques with figure and its application.
    - 5.11 Describe the foaming processing techniques with figure and its application.

Practical:

1. Identification of polymers used in footwear manufacturing.
2. Determination of selected chemical composition of selected polymers.
3. Determination of viscosity of acrylic, polyurethane, butadiene binders
4. Determination of adhesive strength of acrylic, polyurethane, butadiene binders.
5. Determination of flexibility of finish film based on acrylic, polyurethane, butadiene binders.
6. Determination of water resistance of finish film based on acrylic, polyurethane, butadiene binders.
7. Determination of tensile strength and elongation of finish film formation by acrylic, polyurethane, butadiene binders.

Reference Books:

1. Gowariker V.R.-Polymer Science.
2. Arora M.G. and Singh M.-Polymer Chemistry.
3. BillmeyerF.W.Jr.-Text Book of Polymer Science.
4. Fried J.R.-Polymer Science and Technology.
5. Misra G.S.-Polymer Chemistry.
6. Winding C.C and Hiatt G.D.-Polymeric materials.
7. Ghosh P.-Polymer Science and Technology of Plastics and Rubbers.

69054 Environmental Studies

T	P	C
2	0	2

AIMS

- To be able to understand the basic concepts of environment and environmental pollution.
- To be able to understand the concepts of ecology and ecosystems
- To be able to understand the basic concepts of environmental degradation relating to industrial production.
- To be able to understand the major environmental issues and problems.
- To be able to understand legislative measures to protect environment.

1 SHORT DESCRIPTION

Basic concepts of environment; natural resources; biogeochemical cycling; ecology and ecosystem; air; water; soil; solid waste management; development and environment; global environmental challenges; legislative protection of environment.

2 DETAIL DESCRIPTION

1. Understand the multidisciplinary nature of environmental studies.

1.1. Define environment, nature, pollution, pollutant, contaminant.
1.2. Describe the scope of environmental studies.
1.3. Describe the importance of environmental studies.
1.4. Describe the formation and structure of the Earth.
1.5. Describe the earth's natural system.
1.6. Describe the changing attitudes to the natural world.
1.7. Mention the main components of environment.
1.8. Define natural and man-made environment.
1.9. Distinguish between natural and man-made environment.

2. Understand the natural resources.

2.1. Define natural resources.
2.2. Classify natural resources.
2.3. Describe forest resources.
2.4. Describe water resources.
2.5. Describe mineral resources.
2.6. Describe food resources.
2.7. Describe energy resources.
2.8. Describe land resources.
2.9. Describe environmental problem relating to resources use.
2.10. Describe the role of an individual in conservation of natural resources.

3. Understand the biogeochemical cycling.

3.1. Define biogeochemical cycle.
3.2. Describe hydrologic cycle.
3.3. Describe carbon cycle.
3.4. Describe nitrogen cycle.
3.5. Describe oxygen cycle.
3.6. Describe phosphorus cycle.
3.7. Describe sulfur cycle.
3.8. Describe nutrient cycle.

4. Understand the ecology and ecosystem.

4.1. Define ecology and ecosystem.
4.2. Structure and function of an ecosystem.
4.3. Describe the components of ecosystem.
4.4. Explain the stability of ecosystem.
4.5. Describe ecological factors.
4.6. Describe interdependency between abiotic and biotic component.
4.7. Describe the meaning of following terms: species, population, community, ecological succession, community periodicity, climax community, ecological niche, habitat, plankton, nekton, ecological indicator, evolution, adaptation, producers, consumers, decomposers, food chains, food webs, ecological pyramids, bio-concentration, bio-magnification, biodiversity, threatened species, endanger species, extinct species, exotic species, biodiversity conservation and biogeography.
4.8. Describe energy flow in the ecosystem.
4.9. Describe the ecosystem of pond, ocean, estuary, grassland, cropland, forest, desert and mangrove.

5. Understand the air as a component of environment.

5.1. Define air.
5.2. Describe the composition of the clean dry atmospheric air at ground level.
5.3. Describe the atmospheric structure.
5.4. Define air pollution.
5.5. Describe major air pollutants and their impacts.
5.6. Describe the sources of air pollutants.
5.7. Explain the formation of photochemical smog and its effects.
5.8. Describe the effects of air pollution on vegetation, animal, human health and materials and resources.
5.9. Define sound and noise.
5.10. Describe the classification of sound.
5.11. Describe the effects of noise.

6. Understand the water as a component of environment.

6.1. Define water.
6.2. Describe the characteristics of water.
6.3. Describe the sources of water.
6.4. Describe the uses of water.
6.5. Explain that the water is a universal solvent.
6.6. Define water pollution, biological oxygen demand (BOD), effluent treatment plant (ETP).
6.7. Describe the sources of water pollution.
6.8. Describe the effects of water pollution.

7. Understand the soil as a component of environment.

7.1. Define soil.
7.2. Describe the constituents of soil.
7.3. Define soil pollution.
7.4. Describe causes soil degradation.
7.5. Describe the sources of soil pollution.
7.6. Describe the effects of soil pollution.

8. Understand the concept of solid waste management.

8.1. Define solid waste, refuse, garbage, rubbish, trashes, demolition and construction waste, e-waste, agricultural waste, pathological waste, radioactive waste, hazardous waste, 3R, 4R.
8.2. List the sources of solid waste.
8.3. Mention the classification of solid waste.
8.4. Mention the methods of collection of solid waste.
8.5. Describe the recycling of solid wastes.
8.6. Describe resource recovery from solid waste.
8.7. Describe the potential method of disposal of solid waste.

8.8. Describe control measures of urban and industrial wastes.

9. Understand the development and environment.

9.1. Define environmental ethics and environmental stress.
9.2. Describe environmental stress.
9.3. Define sustainable development.
9.4. Define urbanization.
9.5. Describe the causes of urbanization.
9.6. Describe the effects of urbanization on environment.
9.7. Define industrialization.
9.8. Describe the causes of industrialization.
9.9. Describe the effects of industrialization on environment.

10. Understand the global environmental challenges.

10.1. Define greenhouse gas and greenhouse effects.
10.2. Make a list of greenhouse gases and their contribution on greenhouse effects.
10.3. Describe the causes and consequences of greenhouse effects.
10.4. Describe acid rain.
10.5. Describe importance of ozone layer.
10.6. Define ozone depleting substances (ODS).
10.7. Describe ozone layer depletion mechanism.
10.8. Describe hazardous waste.
10.9. Describe chemicals pesticides.
10.10. Describe radioactive pollution.
10.11. Describe natural disaster.

11. Understand the legislative protection of environment.

11.1. Define environmental impact assessment (EIA) and environmental auditing (EA).
11.2. Mention environmental act and legislations prescribed for air, noise, water, soil and wild life protection.
11.3. Describe environmental conservation act 1995 in Bangladesh.
11.4. Describe the environment conservation rule 1997 in Bangladesh.
11.5. Describe the environmental framework in Bangladesh.
11.6. Describe The Montreal Protocol and The Kyoto Protocol.
11.7. Describe role of an individual in prevention of pollution.

REFERENCES:

1. Fundamentals of Environmental Studies, Mahua Basu and S. Xavier, Cambridge.
2. Ecology and Environment, P.D. Sharma, Rastogi Publications.
3. Basics of Environmental Science, Michael Allaby, Routledge.
4. Environmental Science, Jonathan Turk and Amos Turk, Sauders golden sunburst series.

65851 **ACCOUNTING THEORY & PRACTICE** **T P C**

2 3 3

AIMS

· To be able to understand the principles and practices of book keeping and accounting.

· To be able to understand the procedures of general accounting, financial accounting and their applications.

·To be able to understand the concept of income tax , VAT & Public works accounts.

Course Outlines

Concept of book keeping and accounting; Transactions; Entry systems; Accounts; Journal; Ledger; Cash book; Trial balance; Final accounts; Cost account & financial accounting; Income Tax; Public works accounts.

DESCRIPTION;

THEORY

1. Concept of book keeping and accounting.

1.1 Define book keeping and accountancy.

1.2 State the objectives & of book keeping.

1.3 State the advantages of book keeping.

1.4 Differentiate between book keeping and accounting.

1.5 State the necessity and scope of book keeping and accounting.

2. Transactions Analysis.

2.1 Define transactions and business transaction.

2.2 Describe the characteristics of transaction.

2.3 Discuss the classification of transaction.

3. Entry system of Accounting.

3.1 State the aspects of transactions.

3.2 Define single & double entry system ..

3.3 Discuss the principles of double entry system.

3.4 Distinguish between single entry and double entry system of book keeping.

3.5 Justify whether double entry system is an improvement over the single entry system.

4. Classification of accounts.

4.1 Define accounts.

4.2 State the objectives of accounts.

4.3 Illustrate different type of accounts with example.

4.4 Define “Golden rules of Book keeping”.

4.5 State the rules for “Debit” and “Credit” in each class of accounts.

4.6 Define accounting cycle.

5. Journal .

5.1 Define Journal.

5.2 State the functions of Journal.

5.3 Mention the various names of Journal.

5.4 Interpret the form of Journal.

6. ledger.

6.1 Define ledger.

6.2 Interpret the form of ledger.

6.3 State the functions of ledger.

6.4 Distinguish between Journal and Ledger.

6.5 Explain why ledger is called the king of all books of accounts.

6.6 Explain the following terms: Balance, Balancing; Debit balance; credit balance.

7. Cash book & Its Classification.

7.1 Define cash book.

7.2 Classification of cash book.

7.3 Explain cash book as both Journal and Ledger.

7.4 Define discount.

7.5 Explain the different types of discount.

8. Trial balance.

8.1 Define trial balance.

8.2 State the object of a trial balance.

8.3 Discuss the methods of preparation of a trial balance.

8.4 Explain the limitations of a trial balance.

8.5 Prepare trial balance from given ledger balance. (practical)

9. Final accounts.

9.1 State the components of final account.

9.2 Distinguish between trial balance and balance sheet.

9.3 Select the items to be posted in the trading account, profit & loss account and the balance sheet.

9.4 State the adjustment to be made from the given information below or above the trial balance.

9.5 Explain the following terms: revenue expenditure; capital expenditure; depreciation; annuity method demnishing balance method, machine hour method

10. Cost and financial accounting.

10.1 Define financial accounting.

10.2 State the objectives of financial accounting.

10.3 Define cost accounting.

10.4 State the elements of direct cost and indirect cost.

10.5 Discuss the capital budgeting

10.6 Explain the following terms:

a. Fixed cost b. Variable cost c. Factory cost d. Overhead cost e. Process cost f. Direct cost g. Operating cost h. Standard cost

11. Income Tax

11.1 Define Income Tax.

11.2 State the objects of Income Tax.

11.3 Classification of assesses.

11.4.Taxable income of assesses.

11.5 Tax rebate.

11.6 Explain the following terms: Income tax year; assessment year,NBR.

12. Public works accounts.

12.1 State the important aspects of public works accounts.

12.2 Describe the main features of public works accounts.

12.3 Define Value Added Tex (VAT)

12.4 State the merits and demerits of VAT.

12.5 Explain the following terms :Revenue ; Grant ; Bill; Voucher.

Practical

1. Identify the transaction from given statements stating reasons.
2. Determine Debtor (Dr) and Creditor (Cr.) from given transactions applying golden rules.
3. Journalize from given transactions.
4. Prepare ledger from given transactions.
5. Prepare double column cash book from given transactions showing balances.
6. Prepare triple column cash book from given transaction and find out the balances.
7. Prepare analytical and imprest system of cash book.
8. Prepare trial balance from the given ledger balance.
9. Prepare trading account, profit & loss account and balance sheet from the given trial balance & other information.
10. Prepare cost sheet showing prime cost, factory cost, cost of production, total cost and selling price.

Full Marks =150

Marks distribution: Continuous Assessment (Theory): Marks = 40

Continuous Assessment (Practical): Marks = 50

Semester Final Examination: (Theory):Marks= 60

Group -A(Very Short)

1x10= 10

Group -B(Short)

2x10= 20

Group -C

10+20=30

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=60

Reference Books

1. Book-keeping & Accounting - Prof. Gazi Abdus Salam
2. Principles of Accounting - Hafiz uddin
3. Cost Accounting - Prof. Asimuddin Mondol
৪. হিসাবরক্ষণ ও হিসাববিজ্ঞান - পরেশ মন্ডল
৫. উচ্চ মাধ্যমিক হিসাববিজ্ঞান - হক ও হোসাইন
৫ হিসাব শাস্ত্র - ভৌমিক দত্ত স্যার্ন্যাল

৬.আয়কর - ড. মনজুর মোরশেদ