

Pharm-D Courses (Through Department of Pharmacognosy)

First Year					
1st Semester			2nd Semester		
Course No.	Title of Course	Cr. Hr.	Course No.	Title of Course	Cr. Hr.
-	-		PHG-312	General Pharmacognosy	3
Second Year					
PHG-411	Pharmacognosy (Lab)-I	3	PHG-412	Chemical Pharmacognosy-I	3
Third Year					
PHG-511	Chemical Pharmacognosy-II	3	PHG-512	Pharmacognosy (Lab)-II	3
-	-		PHG-514	Natural Toxicants	2
Fourth Year					
PHG-611	Advance Pharmacognosy	3	-	-	-
Fifth Year					
PHG-713	Clinical Pharmacognosy	2	-	-	-
Total 08 Courses making 22 Credit Hours in five years.					

* English compulsory course is to be conducted in 1st year (Second Semester) as a non-credit course under the Department of Pharmacognosy.

FIRST SEMESTER

Second Professional

1. Macroscopic (Organoleptic) Examination of Natural Products**Organized Drugs****Over ground parts**

Seed: *Melia azadirachta*, *Cucumis melo*, *Psoralea corylifolia*, *Lallementia royleana*, *Ricinus communis*, *Ipomea purga*, *Nigella sativa*, *Datura stramonium*, *Tamarix gallica*, *Strychnos nux-vomica*, *Punica granatum* and *Prunus amygdalus*.

Fruit: *Cuminum cyminum*, *Piper nigrum*, *Cubeba officinalis*, *Citrus limon*, *Embelica officinalis*, *Pongamia pinnata*, *Papaver somniferum*, *Aegle marmelos*, *Ficus carica*, *Terminalia chebula*, *Sphaeranthus indicus*, *Illicium verum*, *Tribulus terrestris*, *Prunus domestica*, *Gossypium herbacium* and *Phycotis ajowan*.

Pod: *Helicteres isora*, *Cassia fistula* and *Moringa olifera*.

Flower: *Punica granatum*, *Viola odorata*, *Hibiscus rosa-sinensis*, *Onosma bracteatum*.

Leaf: *Lawsonia innermis*, *Onosma bracteatum*, *Cinnamomum zeylanicum*, *Gymnema sylvestre*, *Catharanthus roseus*.

Bark: *Cinnamomum zeylanicum*, *Onosma echioides*, *Valeriana hardwickii*.

Underground parts

Root and Rhizome: *Alpinia officinarium*, *Flacourtia indica*, *Curcuma amada*, *Zingiber officinale*, *Valeriana officinalis*, *Cuscuta reflexa*, *Glycyrrhiza glabra* and *Smilax china*.

Unorganized drugs

Extracts: *Aloe indica*, *Uncaria gambir*, *Papaver somniferum*.

Exudates: *Ferula foetida*, *Acacia arabica*, *Styrax benzoin*, *Bambusa arundinacea*, *Ipomea purga*, *Pinus longifolia*.

Animal drugs: *Bombyx mori*, *Laccifer lacca*, *Ovis aries*, *Cantheris vesicatoria*, *Cervus elephus*, *Apis mellifera*.

Mineral drugs: Sulphur, Alum, Borax, Ammonium chloride, Asphalt.

The number of crude drugs may be increased on the availability of sources.

2. Microscopic Examination of Natural Products**Powdered Drug Examination**

Bark: *Cinnamomum zeylanicum*.

Seed: *Strychnos nux-vomica*.

Flower bud: *Eugenia caryophyllus*.

Leaf: *Cassia senna*, *Lawsonia innermis*.

Fruit: *Coriandrum sativum*, *Elettaria cardamomum*, *Carum carvi*, *Hyocyamus niger*, *Myristica fragrans*, *Pimpinella anisum*, *Foeniculum vulgare*.

Root: *Glycyrrhiza glabra*, *Atropa belladonna*.

Rhizome: *Zingiber officinale*, *Rheum officinale*.

Resin: *Ipomea purga*, *Podophyllum* spp.

Histological Examination by Section Cutting.**Transverse sections of fresh and dried crude drugs**

Stem: *Ephedra sinica*, *Hyocyamus niger*, *Atropa belladonna*, *Datura stramonium*, *Catharanthus roseus*.

Leaf: *Cassia senna*, *Mentha piperita*, *Digitalis purpurea*, *Eucalyptus globulus*.

Fruit: *Piper nigrum*, *Foeniculum vulgare*, *Coriandrum sativum*.

Seed: *Ricinus communis*.

Bark: *Cascara sagrada*, *Cinnamomum zeylanicum*.

Root: *Aconitum* spp., *Rheum emodi*, *Atropa belladonna*, *Glycyrrhiza glabra* and *Rauwolfia serpentina*.

Rhizome: *Zingiber officinale*, *Curcuma longa*.

Flower bud: *Eugenia caryophyllus*.

3. Phytochemical Examination of Natural Products

Stem: *Cassia senna*, *Mentha piperita*, *Ephedra sinica*, *Hyocyamus niger*, *Atropa belladonna*, *Datura stramonium*, *Catharanthus roseus*.

Root: *Aconitum* spp., *Rheum emodi*, *Atropa belladonna*, *Glycyrrhiza glabra*, *Rauwolfia serpentina*.

Rhizome: *Zingiber officinale*, *Podophyllum* spp. *Ipomoea purga*., *Rauwolfia serpentina*, *Rheum emodi*

Bark: *Cinchona* spp., *Cascara sagrada*, *Cinnamomum zeylanicum*.

Leaf: *Mentha piperita*, *Digitalis purpurea*, *Cassia senna*, *Eucalyptus globulus*.

Fruit: *Foeniculum vulgare*, *Coriandrum sativum*.

Seed: *Strychnos nux-vomica*, *Myristica fragrans*, *Pimpinella anisum*, *Carum carvi*.

Flower: *Eugenia caryophyllus*.

4. Surgical Dressings

Examination of surgical dressings and test for dressings and sutures as given in B.P.C.

5. Analysis and Isolation of Natural Products

- Identification of fixed oils by colour reactions.
- Identification of tannins by colour reactions.
- Determination of the acid value of rosin.
- Determination of Iodine value of olive oil.
- Determination of volatile oil in Cinnamon.
- Determination of saponification value of cotton seed oil.
- Assay of benzoin.
- Assay of peppermint oil for total esters.
- Isolation of menthol from *Mentha piperita*.
- Isolation of rotenone from *Longicarpus* spp.
- Isolation of coumarin from *Melilotus officinalis*.
- Isolation of shikimic acid from *Illicium verum*.

Books Recommended

1. Practical Pharmacognosy, S.B Gokhale, Dr. C.K. Kokate, Ali Nirali Prakashan (2008).
2. Practical Pharmacognosy (9th ed.), K. R. Khandelwal, Ali Prakashan Nir, (2008).
3. Atlas of Microscopy of Medicinal Plant, Culinary Herbs and Spices, Betty P. Jackson, Derek W. Snowdown (Ed.), CBS Publishers and Distributors, (2005).
4. Encyclopedia of World Medicinal Plants (vol. 5), T. Pullaiah, Illustrated, Regency Publications, New Delhi (2006).
5. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals (1st ed.), [Pulok K. Mukherjee](#) Publisher Business Horizons, New Delhi (2002).

Third Professional

PHG-511

Chemical Pharmacognosy-II

Cr. Hrs. 3

1. Alkaloids

Introduction, biosynthesis, classification, extraction, isolation, pharmacological activity and pharmacognostic studies of Pyridine (*Nicotiana* spp.), Piperidine (*Nicotiana* spp.), Tropane (*Hyocyamus*, *Atropa*, *Datura* spp.), Imidazole (*Pilocarpus* spp.), Isoquinoline (*Ipecac*, *Curare*, *Opium* spp.), Quinoline (*Cinchona* spp.), Indole (*Ergot*, *Rauwolfia*, *Catharanthus*, *Nux-vomica* spp.), Purine (*Thea* spp.), Steroidal (*Veratrum* spp.), Diterpene (*Aconitum* spp.), Phenethylamine (*Ephedra*, *Colchicum* spp.) alkaloids.

2. Glycosides

Introduction, classification, chemistry, extraction, isolation, pharmacology and medicinal uses of glycosides from *Glycyrrhiza glabra*, *Dioscorea* spp., *Panax ginseng*, *Cascara sagrada*, *Cassia* spp., *Aloe* spp., *Rheum officinale*, and *Ruta graveolens*.

3. Steroids

Introduction, extraction, isolation, nomenclature, sources and uses of bile acids, plant sterols, cardiac glycosides, steroidal sapogenins, vitamins, steroidal hormones, withanolides and ecdysons.

4. Poisonous Plants

Introduction, sources and toxic manifestations of poisonous plants with special reference to Pakistan.

5. Herbal Practice

Study of traditional medical systems as Unnani, Ayurvedic and Homeopathic in Pakistan.

Books Recommended

1. Biosynthesis of Natural Products, Mannito P., John Wiley and Sons, New York, (1981).
2. Herbal Drugs and Phytopharmaceuticals, Nornam G. Bisset (Ed.), Medpharm Scientific Publishers, Stuttgart (1994).
3. Medicinal Natural Products: A Biosynthetic Approach (1st ed.), Paul M Dewick, John Wiley and Sons, Ltd., Chichester (1997).
4. Medicinal Plants of the World: Chemical Constituents, Traditional and Modern Medicinal Uses (vol. 1-3), Ivan A. Ross, Humana Press, New Jersey, (2005).
5. Poisonous Plants of All Countries (2nd ed.), Arthur-Bernhard Smith, Periodical Expert Book, Delhi (1988).

Fourth Professional

PHG-611

Advance Pharmacognosy

Cr. Hrs. 3

1. Nutraceuticals

Introduction, classification, chemistry, role in healthcare system, toxicity, side effects, regulatory and market aspects of nutraceuticals. Role of flavonoids, isoflavones, lycopene, lignans, lutein, phytoestrogens, amino acids, lecithin, octacosanol, co-enzyme Q, vitamins, bromelain, flax seed oil, cranberry extract, tea extract, pycnogenol, ginkgobiloba, garlic, ginseng, flax, kelp, spirulina, chlorella, chitosan, glucosamine, chondroitin, creatine, carnitine, bee pollen, shark cartilage, royal jelly, fish oil, superoxide dismutase, pro- and pre-biotics, fluoride, zinc, potassium, calcium and selenium as nutraceuticals.

2. Cosmeceuticals

Introduction, classification of cosmeceuticals as skin, eye, hair care and others products. Biological studies, chemistry, uses and toxicology of botanicals and their isolated products used in cosmeceuticals. Role of rosemary, lavender, arnica, chamomile, licorice, pomegranate, calendula, cinnamon, aloe, tea, carrot, jojoba, apricot, ginger, olives, coconut, turmeric, thyme, walnut, cucumber, henna, onion, sage, oats, hibiscus, propolis, bromelin, balsam, gum, myrrh, honey, kelp and Laminaria as cosmeceuticals.

3. Allergens and Allergenic Preparations

Introduction, classification of allergens, causes, history, skin test and treatment of allergies. Types of allergens: inhalent, ingestant, injectant, contactant, infectant and infestant.

4. Enzymes

Introduction, classification, chemistry and functions of plant, animal and microbial enzymes. Study of malt extract, pepsin, streptokinase and asparaginase.

5. Hormones

Introduction, historical background of uses, commercial production, extraction and isolation of animal hormones: adrenal gland, thyroid, pituitary, parathyroid, and pancreas; Plant hormones: auxins, gibberellin, cytokinins and abscisic acid.

6. Anticancer Agents

Introduction of anticancer agents of natural origin, as *Catharanthus roseus*, *Colchicum autumnale*, *Podophyllum peltatum*, rifamycin, antibiotics, macrolide antibiotics, Anti-AIDS agents and immunostimulants.

Books Recommended

1. Williams Textbook of Endocrinology (11th ed.), Henry Kronenberg, Shlomo Melmed, Keneth Polonsky, Saunders, (2008).
2. Anticancer Agents from Natural Products, Gordon M. Cragg, David G. I. Kingston, David J. Newman, CRC Press (2005).
3. Nutraceuticals; A Guide for Healthcare Professionals (2nded.). Brain Lockwood, Pharmaceutical Press, London (2007).

4. Cosmeceuticals and Active Cosmetics: Drugs versus Cosmetics, Peter Elsner and Howard I. Maibach (Eds.), CRC Press (2005).
5. Plants in Cosmetics: Plants and Plant Preparations used as Ingredients for Cosmetic Products. Anton R., Patri F. Silano V., Council of Europe Publishing (2001).

Fifth Professional

PHG-713

Clinical Pharmacognosy

Cr. Hrs. 2

1. Introduction to Clinical Pharmacognosy

General introduction and historical background of clinical Pharmacognosy. Study of causes, pathogenesis, clinical features (sign and symptoms), diagnosis, prognosis, prevention and epidemiology of chronic diseases; principles of medication, treatment by herbal medicines.

2. Clinical Use of Herbal Medicine

Diabetes: *Gymnema sylvestre*, *Melia azadirchta*, *Momordica charantia*, *Syzygium jambulana*.

Cardiac diseases: *Digitalis spp.*, *Convallaria majalis*, *Urgenia indica*, *Allium sativum*, *Punica granatum*.

Hepatitis: *Berberis vulgaris*, *Picrorhiza kurroa*, *Lawsonia innermis*.

Respiratory diseases: *Ficus religiosa*, *Adhatoda vasica*.

Skin diseases: *Aloe vera*, *Angelica archangelica*, *Mentha piperita*, *Citrus spp.*, *Commiphora mukul*.

CNS disorders: *Strychnos nux-vomica*, *Datura stramonium*, *Cannabis sativa*, *Papaver somniferum*, *Atropa belladonna*.

Musculo-skeletal disorders: *Nigella sativa*, *Phycotis ajowan*, *Trigonella foenum-graecum*, *Zingiber officinale*.

Renal disorders: *Cucumis melo*, *Berberis vulgaris*, *Zea mays*, *Tribulus terrestris*.

Reproductive disorders: *Saraca indica*, *Ruta graveolens*, *Nigella sativa*, *Glycyrrhiza glabra*, *Claviceps purpurea*, *Myristica fragrance*.

G.I.T. disorders: *Foeniculum vulgare*, *Ferula foetida*, *Cuminum cyminum*, *Aegle marmelos*, *Prunus domestica*.

Books Recommended

1. Principle and Practice of Phytotherapy: Modern Herbal Medicine, Kerry Bone, Simons Mills, Churchill Livingstone (2013).
2. Pharmacological Methods in Phytotherapy Research, Selection, Preparation and Pharmacological Evaluation of Plant Material (vol.1), Elizabeth M. Williamson, David T. Okpako, Fred J. Evans, Wiley Publishers, (1996)
3. Encyclopedia of World Medicinal Plants (vol. 5), T-Pullaiah., Regency Publication, New Delhi (2006).
4. Natural Products: Drug Discovery and Therapeutic Medicine, Lixin Zhang, Arnold L. Demain (Eds.), Humana Press (2005).
5. Handbook of Clinical Pharmacy, Dr. A. V. Yadav, B.V. Yadav, T. I. Shaikh, Nirali Parkashan, Pune (2008).

SECOND SEMESTER

First Professional

PHG-312

General Pharmacognosy

Cr. Hrs. 3

1. Historical Development and Scope of Pharmacognosy

General introduction, history of Pharmacognosy with special reference to the contribution of Muslim scientists to the profession of Pharmacy. Introduction to herbal pharmacopoeias and modern concepts about Pharmacognosy.

2. Crude Drugs

Crude drugs, commerce, preparation, chemical and therapeutic classifications of crude drugs; official and un-official drugs.

3. Evaluation and Adulteration of Crude Drugs

Organoleptic study, physical evaluation, microscopic evaluation, types of adulteration, inferiority, spoilage, admixture, sophistication and substitution of crude drugs.

4. Drugs of Animal Origin

General introduction and discussion about honey, gelatin, shellac, musk, civet, ambergris, cod liver oil, cantharides and spermaceti.

5. Biologics

Sources, structure, preparation, description and uses of vaccines, toxins, antitoxins, venoms, antivenins, antiserums.

6. Surgical Dressings

Classification of fibers as vegetable, animals and synthetic fibers. Evaluation of fibers in surgical dressings, BPC standards for dressings and sutures. Discussion on cotton, wool, cellulose, rayon, catgut and nylon.

7. Pesticides

Introduction, methods and control of pests with special reference to pyrethrum, tobacco, and other natural pesticides.

Books Recommended

1. Trease and Evans' Pharmacognosy (16th ed.), William C. Evans, George E. Trease, Daphne Evans, Elsevier (2009).
2. Pharmacognosy (9th ed.), Tyler V.E., Brady L.R. and Robbers J.E., Lea and Febiger, Philadelphia (1988).
3. Biologics in General Medicine, Wolf- Henning Boehncke, Heinfried H. Radeke, Springer, (2007).
4. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals (1st ed.), Pulok K. Mukherjee, Business Horizons (2002).
5. Dictionary of Natural Products: Terms in the Field of Pharmacognosy Relating to Natural Medicinal and Pharmaceutical Materials and the Plants, Animal and Minerals from Which They are Derived (2nd ed.), George MacDonald Hocking, Plexus Publication, (1997).

Second Professional

PHG-412

Chemical Pharmacognosy-I

C. Hrs. 3

1. Carbohydrates and Related Compounds

Introduction and classification of carbohydrates, sugars as adjuvant in drugs, role of impurities in sugar substances.

2. Fixed Oils

Introduction, classification, source, active constituents and pharmacological uses of castor oil, cotton seed oil, olive oil, peanut oil, sesame oil, sunflower oil, chaulmoogra oil, corn oil, coconut oil, almond oil, linseed oil, mustard oil, palm oil and soya oil.

3. Essential Oils

Introduction, classification, sources, active constituents and pharmacological uses of clove oil, fennel oil, coriander oil, orange oil, eucalyptus oil, peppermint oil, anise oil, chenopodium oil, turpentine oil, lemon peel oil, citronella oil, caraway oil and thyme oil

4. Resins and Oleoresins

Introduction, classification, active constituents, pharmacological uses of jalap, turpentine, asafoetida, benzoin, rosin, cannabis, podophyllum, ipomea, myrrh, and balsam.

5. Tannins

Introduction, classification, biosynthesis, extraction, identification, occurrence in plants, their role in plant life and chemical study of tannins in kino, myroblan, catechu, nutgall, castanea, and krameria.

6. Chromatography

Introduction, types and application of chromatography for the separation, isolation, purification and identification of drug substances from natural sources.

Books Recommended

1. Biosynthesis of Natural Products, Manitto P., John Wiley and Sons, New York (1981).
2. Chromatography: Fundamentals and Applications of Chromatographic and Electrophoretic Methods. Part A, Fundamentals and Techniques, E. Heftmann, Elsevier Scientific Publishing Company, Amsterdam (1983).
3. Herbal Drugs and Phytopharmaceuticals, Nornam G. Bisset (Ed.), Medpharm Scientific Publishers, Stuttgart (1994).
4. Medicinal Natural Products: A Biosynthetic Approach (1st ed.), Paul M Dewick, John Wiley and Sons, Ltd., Chichester (1997).
5. Medicinal Plants of the World: Chemical Constituents, Traditional and Modern Medicinal Uses (vol. 1-3), Ivan A. Ross, Humana Press, New Jersey (2005).

Third Professional

PHG-512

Pharmacognosy Lab-II

Cr. Hrs. 3

1. Preliminary Screening of Natural Products

Preliminary chemical tests for the detection of carbohydrates, tannins, alkaloids, glycosides, steroids, saponins, terpenes and flavonoids.

- Alkaloids: Mayer's reagent test, Wagner's reagent test, Dragendorff's reagent test.
- Glycosides: Kedde reagent test, Keller killiani test.
- Saponins: Haemolysis test, Froth test, Liebermann-Burchard test.
- Sterols: Salkowski test.
- Flavonoids: Colour test, Cyanidin test.
- Tannins: Ferric chlorides test, Lead acetate test.

2. Chromatography

- To show the presence of strychnine and brucine in *Strychnos nux-vomica* mixture (acid or alkaline) by thin layer chromatography (TLC).
- To examine tinctures or extracts of *Digitalis purpurea* leaf by paper chromatography.
- To separate different constituents of alkaloid mixture or colouring substances by column chromatography.
- To determine ephedrine hydrochloride through ion exchange chromatography.
- To separate alkaloids from an extract or tincture of *Atropa belladonna* through ion exchange chromatography.

3. Isolation and Identification of Natural Products

- Hyoscyamine from *Atropa belladonna*.
- Piperine from *Piper nigrum*.
- Strychnine, brucine from *Strychnos nux-vomica*.
- Caffeine from *Thea sinensis*.
- Jalap resin from *Ipomea purga*.
- Starch from *Solanum tuberosum*.
- Myristicin and trimyristicin from *Myristica fragrans*.
- Pectin from *Citrus paradisi*.
- Extraction of Clove oil by steam distillation.
- Identification of fixed oil by colour reactions.

4. Spectroscopy

- Interpretation of I.R. spectra of antibiotics and glycosides.
- Interpretation of U.V. spectra of indole-alkaloids.
- Separation and identification of essential oils by GC-MS.

Books Recommended

1. Chromatography: Fundamentals and Applications of Chromatographic and Electrophoretic Methods. Part A, Fundamentals and Techniques, E. Heftmann, Elsevier Scientific Publishing Company, Amsterdam (1983).
2. Clarke's Isolation and Identification of Drugs, Moffat A. C., Pharmaceutical Press, London (1975).
3. Plant Drug Analysis: A Thin Layer Chromatography Atlas (2nd ed.), Hildebert Wagner, Sabine Bladt, Springer-Verlag, New York (1996).
4. Principles of Instrumental Analysis (5th ed.), Douglas A. Skoog, F. James Holler, Timothy A. Nieman, Saunders College Publishing, Philadelphia (1998).
5. Thin-Layer Chromatography: A Laboratory Handbook, Egon Stahl, Springer-Verlag (1969).

Third Professional

PHG-514

Natural Toxicants

Cr. Hrs. 2

1. General Introduction to Natural Toxicants

Definition, classification and chemical nature of natural toxins and toxicities in humans and animals.

2. Higher Plant Toxins

Essential oils: Terpene (cineol, pine oil), Phenylpropane (apiol, safrole, myristicin), Monoterpene (thujone, menthafuran) Plant acids (oxalic acid, amino acid, resin acid), Glycosides (cardiotonic, cyanogenic), Alkaloids (imidazole, pyrrolizidine, tropane).

3. Lower Plant Toxins

Bacterial toxins (*Staphylococcus aureus*, *Clostridium botulinum*), Algal toxins (*Microcystis aeruginosa*, Cyanobacteria, *Gonyaulax cantenella*).

4. Mycotoxins

Fungal toxins (*Aspergillus spp.*, *Claviceps purpurea*), Mushrooms (*Amanita spp.*).

5. Study of Toxins, their Prevention and Control Methods

Description, pharmacognostic features, pharmacological actions, chemical constituents, treatment, side-effects, contra-indications, warnings, prevention and control methods of *Abrus precatorius*, *Papaver somniferum*, *Eucalyptus spp.*, *Nicotiana tabacum*, *Cannabis sativa*, *Digitalis purpurea*, *Datura stramonium* poisoning.

Books Recommended

1. Dictionary of Plant Toxins, Jeffery B. Harborne, Herbert Baxter, Gerard P. Moss (Eds.), Chichester, John Wiley (1996).
2. Herbal Products, Toxicology and Clinical Pharmacology (2nd ed.), Timothy S. Tracy, Richard L. Kingston (Eds.), Humana Press, Totowa (2007).
3. Poisonous Plants of Pakistan, S. H. Abid Askari, Oxford University Press, 2010.
4. Poisonous Plants: A Hand Book for Doctors, Pharmacists, Toxicologists, Biologists and Veterinarians (2nd ed.), Dietrich Forhne, Hans J Pfander, Manson Publishing, London (2004).
5. Poisonous Plants and Related Toxins, Thomas Acamovic, Colin S. Stewart, T. W. Pennycott, CABI (2003).

English Mandatory

Non-Credit Course

1. Parts of speech and articles
2. Verb – Transitive and intransitive verbs
3. Active and passive voice
4. Modal verbs
5. Skimming and scanning
6. Precise writing and comprehension
7. Letter writing
8. Memo

9. Minutes of the meeting
10. How to write research proposals + term papers
11. Presentation skills
12. Technical writing
13. Note – taking
14. Essay writing

Books Recommended

1. English Grammar in use by Raymond Murphy
2. The Art of Public speaking by Stephen E. Lucas
3. The North Field Guide to writing, with Readings Editions by Richard Bullock Maureen
4. Dalay Goggin
5. Critical Theory Today: A user-friendly guide by Lois Tyson
6. A Practical English Grammar by A. J. Thomson & A. V. Martinet
7. Practical English Usage by Michael Swan
8. The Power of Communication: Skills to build trust, inspire loyalty and lead effectively by Helio Fred Gracia.
9. Power Listening: Mastering the most critical business skills of all by Bernard T. Ferrari.
10. English Grammar by Wren & Martin

