

Specific Objectives:

To provide the students with opportunity to combine science of horticulture and their creative abilities in provision of aesthetically beautiful and functional environment.

Theory:

Classification of landscape plants, Growth habits, foliage and flowering effects, Propagation and maintenance of important landscape plants, Suitability of various plants for different purposes and locations, Principles, elements and types of landscape, Establishment and maintenance of lawn and turfs.

Practical:

Study of various soft and hard landscape designs, Aesthetic study of stem, branches, leaves, flowers and fruits, Practice in landscape designing, Visits to private and public landscape areas.

Books Recommended:

1. Arora, J.S. 2003. Introductory Ornamental Horticulture (4th Ed.). Kalyani Publishers, New Delhi.
2. Biondo, R.J., and C.B. Schroeder. 2006. Introduction to Landscaping Design, Construction and Maintenance (3rd Ed.). International Book Distributing Company (Publishing Division), Lucknow, India.
3. Bhattacharjee, S.K. 2004. Landscape Gardening and Design with Plants. Aavishkar Publishers, Distributors, Jaipur, India.
4. Raj, D. 2002. Floriculture and Landscaping. Kalyani Publishers, New Delhi.
5. Ingels, J.E. 1992. Landscaping: Principles and Practices. Delmar Publishing Inc. New York.
6. Gilmer, M. 2002. Water works. Contemporary Books McGraw Hill Companies, Sydney, Australia.
7. Hessayon, D.G. 2007. Expert Series. Transworld Publishers, London, U.K.

Principles of Landscape Design

Followings are the basic principles of Landscaping;

Balance. Balance refers to the arrangement of objects around a vertical axis. Balance implies equilibrium, which may be real or illusory. The exact matching of species and positions of the plants on each side of a dominant centerpiece like a building creates balance and symmetry. The formal landscapes in front of the Taj Mahal at Agra and Jehangir's Tomb at Lahore are superb examples of balance. In informal designing, balance is not achieved merely by exact matching of species and positions of plants on each side of an axis, but by an intelligent use of colour, texture, and form.

Rhythm. Rhythm refers to the occurrence of some object, sound, or event at regular intervals of space or time. Very common examples of rhythm are the heartbeat, a drum beat, or repetition of a motif in a design. In the context of landscape designing it would be the repetition of a plant, tree, or flower bed at equal intervals in a garden.

Emphasis. As in a painting, in a garden there is usually some special object to be focused on and highlighted. This aspect of design is achieved by careful placement of dominant plants or other object(s) which give emphasis to the design. A large tree, colorful shrubs or flowers, or features like a pool or terrace can be used to create accent.

Harmony. Harmony results when all the materials in the design combine to produce a pleasing effect, and depends on good use of scale and combination of plant materials. The landscape designer should aim at unity in the overall design, and coherence of its various parts and elements.

Types of design

Selection of plants and styles of plantation have changed with changing life styles throughout history. The criteria for plant selection and planting designs change according to the cultural traditions and heritage of the people, based on their varying perceptions of beauty. Primarily, there are two styles of gardening: FORMAL and INFORMAL. Both style& are of ancient origin.

Formal Design. This style of gardening, also referred to as the Muslim style, is commonly practiced in the Middle East and Indo-Pakistan. This style is very simple and uncomplicated. It is based on geometric symmetry on both sides of a chosen axis. The illumination contrasts between day and night, and between areas of shade and light are taken into account. Trees are planted to provide a maximum of shade in order to moderate the unkind effects of the climate. Summer's high temperatures and dry air necessitate the construction of water reservoirs, humidification through fountains and waterfalls, and efficient irrigation systems. Plants are used to delineate and emphasize formal patterns by the recurrence of one species at regular intervals. Cypress avenues are usually planted to direct attention to a vista beyond the garden or to spotlight some feature in the garden. Topiary work is another characteristic of this garden design.

Informal Design. The informal design of gardening is generally referred to as Japanese garden design. It is a naturalistic design in which balance and harmony is achieved through curved, non-geometric lines without repetition of any form, and many artistic techniques, avoiding symmetrical planning. The visual effect of one plant is considered in relation to another plant. A major consideration is given to the contrasts between the forms of the various plants and the habit or line effects. Short-lived seasonal effects of strong visual contrast are especially sought after. Trees and ground flora are planted for spring and autumn effects. Mountain and river landscapes are simulated by mounds, streams, and certain plants.

Elements of design

Color. There is tremendous variation in the coloration of different plant organs-flowers, fruit, foliage, stem, and bark. Indeed, the most attractive colors are those of natural flowers, fruits, and foliage. Each color presents an assortment of hues in all intensities. The most predominant and indispensable is green, in all possible tones and values. Green is pervasive, pleasing, and restful to the eyes and the mind. Red, orange, and yellow suggest warmth, while blue, purple, and green are regarded as cool colors. Another perception is that the warm colors seem to advance towards the observer and the cool colors seem to remain in the background. The pure colors of the spectrum-red, blue, and yellow-look closer to the observer than when tinted towards neutral grey. Therefore, these perceptual sensations associated with different colors give life to a landscape and create the effect of advance or recession.

Texture. In design, texture means the visual effect of tactile surface quality. Plant materials like leaf, stem, and bark vary in texture; some are smooth, soft, and fine - like flower petals; others are rough, hard, and rigid - like the bark of an acacia tree. The different textures of plant materials and species can be arranged to produce a visual effect of contrast. Therefore textural differences among plants should be one of the considerations in the choice of species for planting in a landscape.

Form. The terms form and habit are often used while talking about the appearance of plants. Habit can be described as the direction of growth, and form as the shape of a three-dimensional object. With trees, the habit aspect is generally most prominent, while with shrubs form is most salient. In deciding on the visual suitability of plants with particular habits, other visual qualities like colour should also influence plant choice. There is a field of psychotherapy using plants. Designers and plant therapists believe that certain combinations of objects with distinctive forms and habits produce effects of stress, repose, or balance.

Line. Line guides the eye from one part of a design to another; it defines shape and structure, and can evoke emotional responses. For these reasons straight and curved lines are combined in designs. Triangles, rectangles, circles, and modifications of these and other geometric forms are used in designing.

Lawns

A lawn is often the heart of a garden. It is a source of continuing pleasure; the green of the grass is soothing to the eyes and consoling to the mind. The open expanse of a lawn imparts dignity to a site and provides the foreground to any architectural or landscape work. Utilitarian sites like recreation grounds and playing fields are all planted and maintained as lawns.

Varieties

The grasses used for turf or lawns vary in different regions according to the soil and climatic conditions. In Pakistan, which mostly has a subtropical climate, Bermuda grass (*Cynodon dactylon*) is generally used for lawns. This grass is a native of the Indo-Pakistan subcontinent. It grows well in summer, relishing high temperatures and full sunshine, but does not thrive in shade. Bermuda grass is very resistant to drought and high temperatures but has a tendency to

frost damage and winterkill. It has all the characteristics of an excellent turf; it spreads by stolons which root readily from each joint and quickly produce a thick turf. It develops quickly and stands regular mowing as well as being resistant to drought and diseases. One drawback is that its bright green colour fades during winter in open and exposed lawns. Lawns in protected places may retain their colour during winter. Some of the important varieties are Tifway, Tifgreen, Tifton, Tifdwarf, and Dhaka.

Establishment of new lawns

A good lawn is a blessing; it is a source of joy and visual pleasure. Three things are necessary for the establishment of a new lawn. It should be planted on a piece of good, fertile, well-drained land receiving a maximum of sunshine. Seed or turf of a superior variety should be selected; and cultural practices should be appropriate and timely.

Preparation of land. The land to be planted as lawn should be thoroughly dug out or deeply ploughed many times. All debris, rubbish, and stones should be removed and the land levelled. It should then be irrigated to check the finer levelling and minor depressions and irregularities corrected. Often the land is ploughed again and well-rotted FYM thoroughly mixed into the soil at the rate of 1 t/100 sq m. Before grass is planted, 10-12.5 kg of superphosphate and 5 kg of ammonium sulphate/10 sq m are broadcast and mixed properly, taking care that the final levelling is not disturbed.

One should remember that a lawn remains for many years, while a crop is sown every season. Therefore, any mistake committed during the establishment of a lawn will be difficult to correct later. Levelling is the most important step in planting a lawn.

Time of planting. Since Bermuda grass is a summer-growing grass, it should be planted so that it is well established before the onset of winter. The best planting time is in July at the beginning of the rainy season. Where irrigation water is ample, planting may be done in March-April. There should be no shortage of water during the following hot and dry months.

Planting. There are many ways to plant lawn grasses: seeding, sprigging, plugging, or sodding.

Sprigging is the most economical and commonly used method for turfing in Pakistan. Sprigs of well-grown grass are taken from any established lawn or grass nursery. Clusters of 3-5 sprigs are

planted at a distance of 10-15 cm each way. The basal portions of the sprigs are buried and the upper portions left above ground. The soil around the transplanted sprigs is then patted firm. Grass from 1 sq m is enough to plant about 15 sq m of lawn. Irrigation is given immediately after planting.

The method of **sodding** or turfing is costly and is employed to achieve immediate results. Blocks of suitable sizes are cut from grass-nursery lawns and removed along with about 3.5-5 cm of soil. These blocks are set together on the prepared soil in the same fashion as flooring is done with tiles. Arrangements should be made to keep the blocks pressed down so that they do not float when they are irrigated.

For **seeding**, the bed is prepared properly as for any crop. In an ideal seedbed, when the soil has settled down it does not show deep footprints when walked on and the surface is crumbly. The best time for seeding is early summer so that the lawn is ready before the onset of winter. Seed should be selected with care keeping in view the environmental conditions and the purpose of the lawn. For 1000 sq m of lawn, 2-3 kg of seed is sufficient. The seed is sown after the plot has been levelled and finely prepared.

Maintenance

Rolling. After the first irrigation, when the soil is still moist, the lawn is rolled with a medium-weight roller. Rolling is carried out after each irrigation until the lawn is established.

Mowing. The first mowing is delayed until the swards have grown 10-15 cm high. The first cutting is preferably done with a sickle; thereafter it can be done with a lawn mower. After the first cutting, the lawn is mowed when the swards are about 5 cm tall. Close mowing is not recommended; the mower should be set at 12 mm and should have a grass catcher so that the cut grass does not fall on the lawn.

Weeding. Because of the use of FYM and canal water for irrigation, seeds of many pernicious weeds find their way into lawns and grow at the expense of lawn grass. Weeding should, therefore, be carried out very steadfastly and carefully.

Irrigation. Bermuda is a fast-growing grass and needs frequent watering for a healthy and beautiful appearance. If irrigation is delayed the grass becomes coarse and looks shabby. During summer, when growth is faster, irrigation is needed more frequently (every 5-7 days); in cold

weather, when growth is almost stopped, the intervals are longer. At each irrigation the lawn should be thoroughly soaked so that the entire root zone is properly wetted. Light irrigations restrict root growth to near the soil surface. Lawn sprinklers are very useful for this purpose. They have the advantage of also washing the grass and making the lawn look fresh and clean.

Fertilization. A well-fed lawn is greener and more even than a poorly fed one, and it also has fewer weeds since the vigorous turf chokes out most of them. Nutrients are continuously being removed in grass clippings; therefore the soil has to be replenished every season by adding 2.5 kg of ammonium sulphate for each 100 sq m of lawn. Irrigation is applied immediately afterwards. The best times to apply fertilizer are as new growth commences, in the beginning of spring, and then again after the rainy season.

Aeration. Unlike agricultural crops, lawns are not hoed. Aeration, however, must be provided to the roots once a year. In the fall, after a close mowing, lawns are rolled with peg/prick rollers. The pegs or pricks penetrate the soil to a depth of about 1 cm. Superphosphate is also applied afterwards so that it lodges in the peg holes. Aeration is followed by irrigation.

Thatching. Bermuda grass spreads along the surface by means of stolons. The stolons make roots at each joint so that after a few months the whole lawn surface is covered by a thick mat of stolons and looks coarse and whitish. To remedy this situation, lawns are scraped once a year. The whole surface is scraped to remove the thatch. The best time for scraping is at the beginning of the rainy season. After scraping, the soil is lightly loosened with rakes. FYM at the rate of 500 kg/sq m and 2.5 kg/sq m of ammonium sulphate are added and properly mixed. The ground is then irrigated. During this operation care is taken that the level of the lawn is not disturbed.

House plants

A large number of plant species, selected from diverse ecological regions, are grown in containers for decoration inside and around buildings. These house plants must grow under non-natural conditions, usually confined to pots of varying sizes. The most popular ones are those which remain healthy and grow slowly. Plants that double in size in a few months outgrow their usefulness as decorative plants. Plants which grow well under shady or semi shady conditions keep well indoors and are referred to as

indoor plants. Indoor decoration with plants is called interior landscaping or interior plantscaping. The same principles are applied as for outdoor landscaping.

Today's life style, particularly in urban areas, is characterized by intense competition, causing stresses, strains, depression, and hypertension. Plants can serve as a source of beauty and serenity, providing relaxation and helping to enlarge the imagination and revive the spirit.

Causes of plant failures in the house

Plants grown inside are as though kept under house arrest. The environment inside a house is quite different from the natural habitat from which they are selected. The house environment has abnormal temperatures, restricted air circulation, unusual light conditions, low humidity, cooking gases, dust, and other pollutants, water of different composition, and artificial means of irrigation. All these conditions are not favourable for normal plant growth. When selecting house plants, one should look for those which are relatively tolerant to an environment with limited fresh air, relatively dry air, narrower differences in day and night temperatures, limited space for the root system, limited lateral and vertical space for branching, over or under watering abuse, unnatural light regimes, and unnatural water composition.

Growing requirements

Light. Light is essential for the growth and development of plants and many vital processes within plants. Three aspects of light are important- intensity, duration and colour. Each plant species has a minimum light requirement below which it cannot survive, and the selection of plants for the house must be based on this factor.

Temperature. All biochemical reactions responsible for the life of plants are influenced by temperature. Tropical or subtropical plants need relatively high temperatures for normal growth. Most of them grow satisfactorily at temperatures between 18 and 24°C, preferably with a 5-10°C drop at night. They are usually injured at temperatures below 4.5-7°C.

Moisture. Water is a major component of the plant's body, and judicious application of water is one of the key factors in the maintenance of house plants. The amount and the intervals between irrigations cannot be predetermined since they depend upon the environmental conditions. Overwatering is the major abuse with -house plants, and must be avoided at all costs. The error,

if any, should be on the dry side rather than the wet. When irrigation is done, the growing medium should be thoroughly wetted; excess water should drain off through the drainage hole.

Growing media. Not all house plants grow equally well in the same type of growing medium. An ideal growing medium is one which contains all the nutrients in available form, is porous and well-drained while retaining moisture well, and is light in weight. It should be low in soluble salts, with a suitable pH and sufficient cation exchange capacity. It should be uniform, disease and pest-free, and compatible with the natural habitat of the species. Most house plants, except 'cacti, prefer a highly organic, acid growing medium (pH 5.8-6.5). A growing medium consisting of good garden soil, leaf compost, and sand in equal proportions by volume is considered good.

Addition of wood shavings makes it airier. In order to prepare a nutritionally balanced medium, the following fertilizers are added to each cubic meter of the above mixture.

- 3 kg calcium carbonate to raise pH to a range of 5.8-6.2
- 3 kg single superphosphate to promote initial root growth and supply the plant with required phosphorus
- a micro-element mix composed of 30 g each of copper sulphate, zinc sulphate, manganese sulphate, and iron chelate

Sphagnum peat, a natural organic compost, and synthetic materials like vermiculite, perlite, or polystyrene beads used in highly industrialized countries to make the medium more porous and well-drained, are not available in Pakistan. Sand and tree bark perform the same function just as well.

Nutrition. Excesses or deficiencies of any of the essential elements cause problems for healthy plant growth. Therefore a well-managed fertilizer program should provide balanced nutrition at all times. N, P, and K are needed in larger quantities than the remaining 13 essential elements. Indoor plants should not be allowed to grow large or fast. If overgrown, they lose their usefulness as indoor plants. The fertilization program should be planned carefully so that the plant remains healthy and maintains a suitable shape and size. The following schedule of fertilizer application has proved satisfactory under our conditions in Pakistan.

- No feeding to the newly potted plant for 2-3 months.
- Monthly application of a mixture of potassium nitrate, calcium phosphate, and ammonium sulphate, in a ratio 1:1:2, in water solution at the rate of 2 g /litre of water.
- Fortnightly application of nitrogenous fertilizer at the rate of 7 g of ammonium sulphate per litre of water.

In some countries slow release fertilizers are available which supply nutrients to the plants slowly for up to six months or more.

Potting and repotting. Pots or containers should be selected carefully. Their size should be suitable for the size of the plant. A small pot cannot hold enough growing medium to support a large plant. The container should be durable, light in weight, attractive in appearance, and easy to handle. Dark-coloured containers placed in the sun build up heat in the growing medium, which is harmful to the plant. The container should have a sufficient number of drainage holes which are covered with crocks, taking care that they are not clogged. The best potting time is just before the normal active period of growth of each kind of plant. Use pots of proper size, neither too big nor too small, and cover the drainage hole with crocks. Prune the roots and branches in order to balance the two and minimize the transpiration surface. Irrigate immediately after potting.

Care and maintenance- summary. Some common guidelines for the care and maintenance of house plants are summarized here. Use a soil medium compatible with the natural habitat of the species, and fertilize plants at proper intervals. Provide sufficient light but avoid direct sunlight. Ensure fresh air but avoid drafts. Water carefully, but do not over-water, avoiding splashing water on the leaves. Turn the containers slightly every third or fourth day for uniform growth, otherwise the plants will grow towards the light source. Do not let the leaves touch walls or furniture. Wipe smooth-leaved plants occasionally to keep them healthy and attractive; plants with hairy leaves should not be washed. Lightly prune plants occasionally to keep them trim. Pinching plants will make them bushier, and with flowering plants, disbudding produces larger blooms. Remove dead, off colour, and spotted leaves as they appear. Every one or two years repot plants as they outgrow their pots, discarding the old soil and pruning the roots slightly. If a plant appears to be unwell, diagnose the problem in consultation with a plant protection expert

and take appropriate measures. Acclimatize plants before moving them from one location to another.

Summer Annuals

Sr #	Common Name	Botanical Name	Family	Flower color	Uses
1	Amaranthus (Love-lies-bleeding)	<i>Amaranthus caudatus</i>	Amaranthaceae	Red tassels	Bedding, arrangements
2	Balsam (Touch me not)	<i>Impatiens balsamina</i>	Balsaminaceae	Pink, red, white	Bedding, pots
3	Celosia (Cocks comb)	<i>Celosia cristata</i> <i>Celosia plumosa</i>	Amaranthaceae	Red, yellow, Orange Maroon	Bedding, pots
4	Cosmos	<i>Cosmos bipinnatus</i>	Compositae	White, blue, red, pink, yellow	Bedding, rockery
5	Datura plant	<i>Datura stramonium</i>	Solanaceae	White, pink, purple	Bedding
6	Gaillardia	<i>Gaillardia aristata</i>	Compositae	Yellow, red with yellow tip	Bedding, pots
7	Gomphrena	<i>Gomphrena globosa</i>	Amaranthaceae	White, purple, blue, red	Bedding
8	Sunflower	<i>Helianthus annuus</i> <i>Helianthus decapetalus</i>	<u>Asteraceae</u>	Yellow	Bedding
9	Kochia	<i>Kochia scoparia</i>	Chenapodaceae	Green and maroon color foliage	Bedding, pots
10	Marigold	<i>Tagetes erecta</i> (African) <i>Tagetes patula</i> (French)	Compositae	Yellow, maroon, orange, radish	Cut flower, bedding, border
11	Morning glory	<i>Ipomoea purpurea</i>	Convolvulaceae	Blue, purple	Climber
12	Portulaca (Gull-e- Dopehri)	<i>Portulaca grandiflora</i>	Portulacaceae	Pink, red, white, purple	Ground cover
13	Zinnia	<i>Zinnia elegans</i>	Compositae	Many brilliant color	Bedding, cut flower, pots

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Winter Annuals

Sr #	Common Name	Botanical Name	Family	Flower color	Uses
1	Ageratum	<i>Ageratum houstonianum</i>	Compositae	Silver	Borders, Edgings, Window boxes, Rock gardens and pots.
2	Alyssum	<i>Alyssum maritimum</i>	Cruciferae	Many brilliant colors	Border, rockery, stony places, window boxes
3	Antirrhinum (Dog flower / Snapdragon)	<i>Antirrhinum majus</i>	Plantaginaceae	Red, Orange, Pale Yellow, Violet, White and bicolor	Border, rockery, window boxes,
4	Aster (Michealmas Daisy)	<i>Aster novibelgii</i>	Asteraceae	Many brilliant colors	Bedding and cut flowers
5	Baby's breath (Gypsophella)	<i>Gypsophila elegans</i>	Caryophyllaceae	Many brilliant colors	Bedding, fresh and dried bouquets
6	Brachycome	<i>Brachycome iberidifolia</i>	Compositae	Yellow, orange, pale	Bedding
7	Calendula (Gull-e-Ashrafi)	<i>Calendula officinalis</i>	Asteraceae	Orange, Bright Yellow	Bedding for long season bloom
8	Chrysanthemum annual (Gull-e-Daoodi)	<i>Chrysanthemum morifolium</i>	Asteraceae	Unlimited colors	Bedding , cut flower and pots
9	Clarkia	<i>Clarkia elegans</i>	Onagraceae	Lilac, white rose, red, pink purple	Bedding
10	Cornflower	<i>Centaurea cyanus</i>	Asteraceae	Pink, red, purple, white and blue	Bedding and cut flowers
11	Dahlia	<i>Dahlia dandy</i>	Asteraceae	Many brilliant colors	Cut flower, pot and bedding.
12	Daisy	<i>Bellis perennis</i>	Asteraceae	Pale Pink, Pink, White with shades	Rockery and Border

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13	Flax (Lal Alsi Phool)	<i>Linum grandiflorum</i>	Linaceae	Red/Scarlet, blue	Cut flower and bedding
14	Gazania	<i>Gazania rigens</i>	Asteraceae	Yellow, multi-color.	Rockery and pots.
15	Ice plant	<i>Mesembryanthemum spp</i>	Aizoaceae	White, pink, red, orange, yellow and mix colors	Ground cover, bedding, border and rockery.
16	Linaria	<i>Linaria maroccana</i>	Plantaginaceae	Pink, Red, Yellow, Violet, Purple, White	Rockery and pots.
17	Nasturtium	<i>Tropaeolum majus</i>	Tropaeolaceae	Dark red, yellow, orange, red	Beds and border
18	Nemesia	<i>Nemesia strumosa</i>	Scrophulariaceae	Scarlet, Orange Red-Orange, yellow	Cut flower, window boxes and pots
19	Petunia	<i>Petunia grandiflora</i>	Solanaceae	Many brilliant colors	Beds, border, pots
20	Phlox	<i>Phlox drummondii</i>	Polemoniaceae	Many brilliant colors	Bedding and pots window boxes
21	Poppy (Gull-e-lala)	<i>Papaver rhoeas</i>	Papaveraceae	Red & reddish orange	Cut flower and bedding
22	Ranunculus (Buttercup)	<i>Ranunculus asiaticus</i>	Ranunculaceae	Pink, red, orange, orange, white, scarlet	Bedding, cut flower, flower arrangements
23	Salvia sage	<i>Salvia splendens</i>	Lamiaceae	Red, pink and purple	Bedding, pots
24	Statice	<i>Limonium sinuatum</i>	Plumbaginaceae	Red, pale yellow, violet. white	Beds, dry flower arrangement
25	Stock	<i>Matthiola incana</i>	Brassicaceae	Yellow, pink, violet	Beds, pots
26	Sweet pea (Matar phool)	<i>Lathyrus odoratus</i>	Fabaceae	Pink, red, Purple, white, bicolor, striped	Climbing

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Perennial Flowers

Sr #	Common Name	Botanical Name	Family
1	Aster	<i>Callistephus alpinus</i>	Compositae
2	Baby's Breath	<i>Gypsophila paniculata</i>	Caryophyllaceae
3	Candytuft	<i>Iberis sempervivirens</i>	Cruiciferae
4	Carnation	<i>Dianthus caryophyllus</i>	Caryophyllaceae
5	Chrysanthemum	<i>Chrysanthemum morifolium</i>	Asteraceae
6	Corn flower	<i>Centaurea montana</i>	Compositae
7	Daisy (English)	<i>Bellis perennis</i>	Compositae
8	Hollyhock (Gul-e-khaira)	<i>Alcea rosea</i>	Malvaceae
9	Lilium	<i>Lilium formosum</i>	Liliaceae
10	Salvia	<i>Salvia azurea</i>	Lamiaceae
11	Sunflower	<i>Helianthus orgyalis</i>	Compositae
12	Verbena	<i>Verbena canadensis</i>	Verbenaceae

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Red Color Flowering Trees

Sr #	Common Name	Botanical Name	Family
1	Gul mohur	<i>Delonix regia</i>	Fabaceae
2	Gul-e-Nishtar	<i>Erythrina suberosa</i>	Papilionaceae
3	Ashoka tree	<i>Saraca indica</i>	Fabaceae
4	Bottle brush	<i>Callistemon lanceolatus</i>	Myrtaceae
5	Simal/Sumbul	<i>Bombax ceiba</i> <i>Salmalia malabarica</i>	Malvaceae

Red Color Flowering Shrubs

Sr #	Common Name	Botanical Name	Family
1	Poinsettia	<i>Euphorbia pulcherrima</i>	Euphorbiaceae
2	Firecracker Shrub	<i>Hamelia patens</i>	Rubiaceae
3	Shoe flower	<i>Hibiscus rosa-sinensis</i>	Malvaceae
4	Gulab	<i>Rosa indica</i>	Rosaceae
5	Kaner	<i>Nerium oleander</i>	Apocynaceae

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Yellow Color Flowering Trees

Sr #	Common Name	Botanical Name	Family
1	Siris	<i>Albizia lebbbeck</i>	Fabaceae
2	Amaltas	<i>Cassia fistula</i>	Fabaceae
3	Parkinsonia	<i>Parkinsonia aculeata</i>	Fabaceae
4	Keekar, babul	<i>Acacia nilotica</i>	Fabaceae / Leguminosae
5	Himalayan maple	<i>Acer oblongum</i>	Aceraceae

Yellow Color Flowering Shrubs

Sr #	Common Name	Botanical Name	Family
1	Lantana	<i>Lantana camara</i>	Verbenaceae
2	Tecoma / Yellow bells	<i>Tecoma stans</i>	Bignoniaceae
3	Shoe flower	<i>Hibiscus rosa-sinensis</i>	Malvaceae
4	Candle bush	<i>Cassia alata</i>	Fabaceae
5	Cassia	<i>Cassia glauca</i>	Fabaceae

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White Color Flowering Trees

Sr #	Common Name	Botanical Name	Family
1	Devil tree	<i>Alstonia scholaris</i>	Apocynaceae
2	White Gul Mohur	<i>Delonix Alata</i>	Fabaceae
3	Black pepper	<i>Schinus molle</i>	Anacardiaceae
4	Bakain	<i>Melia Azedarach</i>	Meliaceae
5	Salt cedar	<i>Tamarix aphylla</i>	Tamaricaceae

White Color Flowering Shrubs

Sr #	Common Name	Botanical Name	Family
1	Murva	<i>Murraya exotica</i>	Rutaceae
2	Lantana	<i>Lantana camara</i>	Verbenaceae
3	Sanatha	<i>Dodonaea viscosa</i>	Sapindaceae
4	Gardenia	<i>Gardenia florida</i>	Rubiaceae
5	Frangi pani/ Gul-e-cheen	<i>Plumeria rubra</i> / <i>P. obtusa</i>	Apocyanaceae

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Climbers of Pakistan

Sr #	Common Name	Botanical Name	Family	Flower color
1	Rangoon Creeper (Jhumka Bail)	<i>Quisqualis indica</i> / <i>Combretum indicum</i>	Combretaceae	White and red
2	Bougainvillea (Bo-gan bail)	<i>Bougainvillea spectabilis</i>	Nyctaginaceae	Shocking pink, yellow, white, orange, light pink
3	Jasmeen (Motia, Mogra, Chambeli)	<i>Jasminum grandiflorum</i> / <i>Jasminum officinale</i>	Oleaceae	White
4	Trumpet vine (Tecoma bail)	<i>Campsis grandiflora</i>	Bignoniaceae	Red, Orange Golden (Yellow- Orange), Yellow
5	Bleeding heart vine (Chloro dam-dam)	<i>Clerodendrum splendens</i> / <i>Clerodendrum inerme</i>	Verbenaceae	Red
6	Honey suckle	<i>Lonicera japonica</i>	Caprifoliaceae	Whitish yellow
7	Bombay creeper / Curtain creeper	<i>Vernonia elaeagnifolia</i>	Asteraceae	Off-white
8	Ivy, Creeping fig	<i>Ficus pumila</i>	Moraceae	Foliage beauty
9	Morning glory (Shakar qandi bail)	<i>Ipomoea purpuria</i>	Convovulaceae	Purple
10	Money plant	<i>Scindepsis aureus</i>	Aroideae	Foliage beauty
11	Harsinghar	<i>Nyctanthus arbotrestrus</i>	<u>Oleaceae</u>	Off white
12	Queen of night (Raat ki rani)	<i>Cestrum nocturnum</i>	<u>Solanaceae</u>	Pale yellow
13	King of the day (Din ka raja)	<i>Cestrum diurnum</i>	<u>Solanaceae</u>	Pale yellow

Ground covers

Places which are rocky, steep or otherwise unsuitable for turfing are planted with vegetation which will cover the ground and make the place more beautiful. Such place is called as ground cover.

Sr #	Common Name	Botanical Name	Family	Propagation
1	Alternanthera	<i>Alternanthera dentata</i>	Amaranthaceae	Cutting
2	Vinca	<i>Vinca rosea</i>	Apocynaceae	Seed
3	Fotolaca (Gull-e-dopehri)	<i>Portulaca grandiflora</i>	Portulacaceae	Seed and Cuttings
4	Spider plant	<i>Chlorophytum comosum</i>	Asparagaceae	Division and Suckers
5	Dicondra	<i>Dicondra repens</i>	Convolvulaceae	Seed and Suckers
6	Snake plant Mother-in-law's tongue	<i>Sansevieria trifasciata</i>	Asparagaceae	Suckers
7	Gul-e-Aqeeq	<i>Canna indica</i>	Cannaceae	Root tubers and Suckers
8	Crown of thorns, Euphorbia	<i>Euphorbia milii</i>	Euphorbiaceae	Cuttings
9	Haathi Kaan	<i>Colocasis antiquorum</i>	Araceae	Seed