

The Co University

Syllabus of Applied Science entitled 'Science Cadet Corps' (SCC) Proposed to be applied for Teen Age students to Graduate students:

Syllabus of

Science Cadet Corps 'A' Certificate Program

Program Duration : 60 Hrs (Theory + Practical's + Field Trips + Assignments)

Theory:

1. Understand nature (Biotic and Abiotic Components)
2. Evolution of Human body and Systems
3. Symbiosis amongst Biotic and Abiotic Components)
4. Chemical Health and Chemical Engineering involved in Human Body
5. Environmental Health
6. Emotional Health
7. Roti (air, water, food), Kapda (cloth) and Makaan(shelter)
8. Human Body Maintenance and Preventive Health Management
9. Air pollution, water pollution, food pollution
10. SOP for learning systems
11. Enrich employability skills
- 12. Community Development through above all**

Practical's

(Intra and Inter Community Development through applying above all)

Air Quality:

- i. Assessment of indoor air quality:
DBT, WBT, RH, Fugitive Dust, Inorganic Gases, Organic Gases, Microbial Contamination, Suspended particles
- ii. Assessment of out door air quality:
DBT, WBT, RH, Fugitive Dust, Inorganic Gases, Organic Gases, Microbial Contamination, Suspended particles
- iii. Purification of indoor air quality:
Selection of door / window curtain, selection of indoor plants, maintenance of plants, mechanical suction of suspended particles, UV ray projections at different locations, Design of exhaust fans to optimize temperature, design of cooling and heating systems
- iv. Prevention & Purification of outdoor air quality:

- Awareness program, Sapling, solid waste management and prevention of foul smell, prevention of fugitive dust, prevention of CO_x, NO_x, SO_x in air
- v. Prevention of indoor air pollution:
Fugitive dust, Microbial Contamination, toxic gases, RH, WBT, DBT
 - vi. Sterilization of indoor air quality
Traditional Homam / Agni Hotra, Dhoop, Power vibration, herbal plants
 - vii. Enrichment of oxygen in indoor environment
Studies on different species of plants about % production of oxygen
 - viii. Prevention of airborne microbes and macrobes in indoor air
Studies on different systems
 - ix. Air as a tool to cure diseases
Practice sessions
 - x. Design of air pyramid
 - xi. Design of pranayamizer

Water Quality:

- i. Total Solids : TDS, Chlorides, Fluorides, Potassium, Calcium, Magnesium
- ii. Suspended Solids : organic, inorganic
- iii. Microbial Matter : E. coli, Salmonella, Typhoid
- iv. Purification of Water: SODIS, Natural Nano filtration, Aeration, Chlorination, Ozonation, Vibration

Soil Quality :

- i. Soil Composition: carbon, hydrogen, nitrogen, phosphorous, sulphur, potassium, sodium, calcium, magnesium
- ii. Soil Additives : preparation of manure, preparation of fertilizers
- iii. Soil Stabilization : optimized addition of nutrients

Health assessment:

- i. Physical Health
- ii. Mental Health
- iii. Emotional Health
- iv. Social Health
- v. Spiritual Health

Field Trips:

- i. Service to self campus in terms of maintaining air quality, water quality, soil quality and solid waste management as well as sewage treatment
- ii. Service to Parents, Relatives and other members
- iii. Service to local offices of Government Organizations

- iv. Service to District and State offices
- v. Service to Central Government and other countries especially G-20 Countries
- vi. Services to Local Industries
- vii. Services to NGOs

Assignments:

- i. Documentation of all above practical's and publication
- ii. Writing Projects to State and Central Government agencies
- iii. Connecting above works to College Development through
 - a. Industrial Visits, Industrial Consultancy
 - b. Research & Development
 - c. Development of laboratory apparatus
 - d. Applying for National and International Awards

Syllabus of Science Cadet Corps 'B' Certificate Program

Program Duration : 60 Hrs (Theory + Practical's + Field Trips + Assignments)

- 1. Problem analysis of industries
- 2. Problem analysis of Society / Community
- 3. Accounting of Men, Material, Machine
- 4. Improvisation of Existing Systems
- 5. Preventive Maintenance
- 6. Corrective Maintenance
- 7. Reactive Maintenance
- 8. Quality Control
- 9. Quality Assurance
- 10. Mock Drills and Emergency Preparedness
- 11. Environmental Management
- 12. Occupational Health Management

Syllabus of Science Cadet Corps 'C' Certificate Program

Program Duration : 60 Hrs (Theory + Practical's + Field Trips + Assignments)

- 1. Problem analysis of industries and exploring newer/ research solutions
- 2. Problem analysis of Society / Community and exploring newer / research solutions
- 3. Accounting of Men, Material, Machine and optimization of resources
- 4. Improvisation of Existing Systems through recycle, bypass and purge
- 5. Advanced Preventive Maintenance
- 6. Advanced Corrective Maintenance
- 7. Advanced Reactive Maintenance

8. Exploration of alternative materials and their Quality Control
9. Newer methods of Quality Assurance
10. Newer methods of Mock Drills and Emergency Preparedness
11. Advanced Environmental Management
12. Advanced and alternative Occupational Health Management

Model Syllabi / Out lines of Co-Curricular Syllabi of UG program in Civil Engineering:

Year 1 / Semester 1& 2:

- i. Science Cadet Corps 'A' Certificate Syllabus to be followed
- ii. Acquisition of Knowledge about industries existing in the vicinity and nation
- iii. Acquisition of Knowledge about Governing agencies and laws

Year 2 / Semester 3 & 4 :

- i. Science Cadet Corps 'B' Certificate Syllabus to be followed
- ii. Field surveying of societal needs
- iii. Design of buildings for local citizens
- iv. Study of pumps, fans, blowers, metering devises, pipes, valves of a company

Year 3 / Semester 5 & 6:

- i. Science Cadet Corps 'C' Certificate Syllabus to be followed
- ii. Structural design for establishment of pharma company, multi storied block
- iii. Preparation of concrete cubes using different material for a proposed newly established to be company
- iv. Geological survey and analysis in collaboration with Government / private agencies

Year 4 / Semester 7 & 8:

- i. Design of Highway and fly over
- ii. Design of Dams
- iii. Effluent Treatment design and operation
- iv. Sewage Treatment design and operation