

Syllabus and Curriculum
of
Diploma in Sanitation course

(To be implemented From 2015 - 16 session)

Uttar Pradesh State Medical Faculty, Lucknow.

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OBJECTIVES OF THE COURSE

To prepare a Sanitary Technician who Is well trained for –

- General sanitation.
- Minor Sanitary engineering.
- Preventive aspects related to public health.

Outline of Curriculum of Diploma in Sanitation course

FIRST YEAR

THEORY (Classes: 9 AM to 12 Noon)

(Total 4 papers)

First paper : Syllabus covers -Anatomy and Physiology

1. General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).

Second paper : General Sanitation

1. Climatology.
2. Nutrition.
3. Entomology.
4. Disinfection and disinfestations.
5. Hygiene inspection.
6. Hygiene of movement.
7. Personal hygiene and snake bite and its first aid.

Third paper : Minor sanitary engineering

1. Water supply
2. Disposal of waste products
3. Disposal of non-excremental refuse
4. Ventilation, lighting and heating

Forth paper : Preventive medicine and public health administration

1. Communicable diseases.
2. Non-communicable diseases and conditions.
3. Contact diseases.
4. Mental health.
5. Occupational health.
6. Insect borne diseases and animal borne diseases.
7. Immunology.
8. Health education.
9. Vital statistics.
10. Elementary bacteriology.
11. Family planning.
12. Rural or village sanitation, fair & festivals.

PRACTICAL (Classes: 1 PM to 4 PM)

Practical classes will be after lunch; from 1 PM to 4 PM.

Students must present in the field / Lab for practicals.

Following subjects must be taught; though there will not be any exam from these-

1. Basic Computer skills.
2. Basic English.
2. **Soft skills like** - Interpersonal relationship skills & moral education.

ELIGIBILITY CRITERIA FOR ADMISSION & DURATION OF THE COURSE

COURSE DURATION:-

- It is 1 year, **full time** Diploma Course.

ELIGIBILITY:-

- Candidate must have passed 12th with
Physics, Chemistry, Biology

Or

Physics, Chemistry, Maths

with 35% marks in Intermediate exams.

(From UP board or any other recognised board).

- Candidate must have completed age of 17 years of age as on 31st December of admission year. There is no maximum age limit for the admission.

SCHEDULE OF EXAMINATION

FIRST YEAR

<u>Paper</u>	<u>Subjects</u>	<u>Mark</u>	<u>Internal Assessment Marks</u>	<u>Total Marks</u>	<u>Pass Marks</u>	<u>Duration of Exam.</u>
<u>First Paper Theory</u>	General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).	75	25	100	50	3 Hours
<u>Second Paper Theory</u>	General Sanitation.	75	25	100	50	3 Hours
<u>Third paper Theory</u>	Minor sanitary engineering.	75	25	100	50	3 Hours
<u>Forth paper Theory</u>	Preventive medicine and public health administration.	75	25	100	50	3 Hours
<u>Practical</u>	Oral & Practical	75	25	100	50	3 Hours

SCHEDULE OF COURSE

(List of holidays, Total hours, Subject wise allotment of hours)

- **List of Holidays:-**

Sundays	- 52 days
Summer vacation	- 10 days
Winter vacation	- 10 days
Gazetted holidays	- 23 days
Preparatory holidays	- 10 days
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Total Holidays	- 105 days
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- **Total Hours :-**

Theory classes per day	- 3 Hours
Practical classes per day	- 3 Hours
Total hours per day	- 6 Hours
Total days & hours in One year (after deduction of holidays)	- 260 days or - 1560 Hours

SCHEDULE OF COURSE

Subject wise allotment of hours

FIRST YEAR **Theory (780 Hours)** **Practical (780 Hours)**

<u>1st Paper</u> <u>Theory</u> General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).	1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).	100 Hrs
<u>2nd Paper</u> <u>Theory</u> General Sanitation.	1.Climatology. 2.Nutrition. 3.Entomology. 4.Disinfection and disinfestations. 5.Hygiene inspection. 6.Hygiene of movement. 7.Personal hygiene and snake bite and its first aid.	210 Hrs
<u>3rd Paper</u> <u>Theory</u> Minor sanitary engineering.	1. Water supply. 2. Disposal of waste products. 3. Disposal of non-excremental refuse. 4. Ventilation, lighting and heating.	200 Hrs
<u>4th paper</u> <u>Theory</u> Preventive medicine and public health administration.	1.Communicable diseases. 2.Non-communicable diseases and conditions. 3.Contact diseases. 4.Mental health. 5.Occupational health. 6.Insect borne diseases and animal borne diseases. 7.Immunology. 8.Health education. 9.Vital statistics. 10.Elementary bacteriology. 11.Family planning. 12.Rural or village sanitation, fair & festivals.	200 Hrs
<u>5th Paper Practical</u>	As described in curriculum	780 Hrs
<u>Theory:</u> <u>Other Subjects</u> <u>(These subjects must be taught;</u> <u>though there will not be any exam from these)</u>	1.Basic Computer skills.	30 Hrs
	2.Basic English.	30 Hrs
	3.Soft skills like - Interpersonal relationship skills & moral education.	10 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 1st Theory	Topics	Hours.
1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).	1. General Orientation about parts of human body. Various terms used in Anatomy. Total numbers of bones, their names & location. Basic idea about organization of body ,from cell to organ systems.	05 Hrs
	2. Structure of Animal cell, Cell organelles & their functions .	02 Hrs
	3. Human tissue, types, structure & functions.	05 Hrs
	4. Osteology: Names, location, identification and basic details of all bones.	05 Hrs
	5. Skin & appendages.	02 Hrs
	6. GIT: : Location, Gross structure, various parts & their functions. Details of process of food ingestion, digestion, absorption & defaecation. (Microscopic structure is not required.)	10 Hrs
	7. Respiratory tract: Location, Gross structure, various parts & their functions. Details of breathing mechanism, different respiratory volumes. (Microscopic structure is not required.)	10 Hrs
	8. Urinary tract: Gross structure, various parts & their functions. (Microscopic structure is not required.) Process of urine formation & voiding.	05 Hrs
	9. Male reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.)	03 Hrs
	10. Female reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.) Menstrual cycl.	03 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 1st Theory	Topics	Hours.
1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).	11. Endocrine system: Hormones secreted by Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal cortex, Adrenal medulla, Gonads & functions of different hormones. (Details of structure of these glands not required).	10 Hrs
	12. Gross structure of brain & spinal cord. Functions of different parts of brain & spinal cord.(Details not required.)	10 Hrs
	13. Blood: Composition & Functions. Details about Plasma, RBCs, WBCs, Platelets, Clotting system.	10 Hrs
	14. Gross structure & functions of sensory Organs - Eye, Ear, Nose, Tongue.(Details not required).	05 Hrs
	15. Basic gross structure of heart, vessels opening into heart & Leaving the heart. Arterial & Venous tree of body.	05 Hrs
	16. Lymphatic system: Structure & Functions.	05 Hrs
	17. Inumune system: Components & various mechanisms of defense.	05 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 2nd Theory General Sanitation.	Topics	Hours.
1.Climatology.	1.Causes of environmental Diseases & effect of climate on health.	02 Hrs
	2.Effects of Heat & Prevention.	02 Hrs
	3.Effects of cold , High Altitude & Prevention.	02 Hrs
	4.Museum – climate section.	02 Hrs
	5.Meteorological instruments and their uses.	02 Hrs
	6..Elementary physiology of the digestive system.	02 Hrs
	7.Food constituents, function and requirements.	02 Hrs
	8.Balanced diet.	02 Hrs
	9.Museum- Food section.	02 Hrs
	10.Vitamins and deficiency diseases.	02 Hrs
2.Nutrition.	11.Malnutrition and its prevention.	02 Hrs
	12.Food adulteration and food adulteration act.	02 Hrs
	13.Inspection of food stuff, dry, fresh and tinned.	02 Hrs
	14.Storage, transportation and cooking of food.	02 Hrs
	15.Food poisoning- Investigation and control.	02 Hrs
	16.Hygiene inspection of Bakery .	02 Hrs
	17.Hygiene inspection of Butchery .	01 Hr
	18.Milk supplies and pasteurization of milk.	01 Hr
	19.Hygiene inspection of dairy farm.	01 Hr
	20.Visit to Dairy Farm,	-
	21.Taking of milk sample and analysis of milk.	02 Hrs
	22.Museum – Milk and food section.	-

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PAPER 2nd Theory General Sanitation.	Topics	Hours.
3.Entomology	23.House fly life history ,habits and its relation to the spread of diseases.	02 Hrs
	24.Antifly measures – fly survey.	02 Hrs
	25.Museum study –fly section.	02 Hrs
	26. Ticks – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	27.Rat flea– Biomics , morphology ,diseases transmitted and control..	02 Hrs
	28.Louse – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	29.Sand fly – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	30.Dimdam fly – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	31.Trombicula mite ticks – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	32.Bed bugs – Biomics , morphology ,diseases transmitted and control.	02 Hrs
	33.Leeches- life history and control.	02 Hrs
	34.Museum – Insect section.	-
	35.Field work – Sand fly survey.	-
	36.Delousing – (Lecture/Demonstration).	01 Hr
37.De-bugging.	01 Hr	

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PAPER 2nd Theory General Sanitation.	Topics	Hours.
3.Entomology	38.Importance of Malaria.	02 Hrs
	39.Life cycle of Anopheline and Culicine mosquitoes.	01 Hr
	40.Differentiation of Anopheline and Culicine mosquitoes in all stages.	02 Hrs
	41.Habits of mosquitoes .	01 Hrs
	42.Museum mosquito section .	-
	43.Malaria parasites –life cycle , species and characteristics (Lecture/Demonstration) .	01 Hr
	45.Museum malaria parasites section.	-
	46.Dissection of adult mosquitoes.	-
	47.Field work- Adult mosquitoes collection.	-
	48.Preservation of collected specimens.	01 Hr
	49.Vectors of major importance in India.	01 Hr
	50.Malaria survey and spot map making .	01 Hr
	51.Field work - Malaria survey and spot map making .	-
	52.Malaria control in general.	01 Hr
53.Suppressive treatment and anti malaria drugs.	01 Hr	

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PAPER 2nd Theory General Sanitation.	Topics	Hours.
3.Entomology	54.Personal protective measures , camp siting and malaria curfew.	01 Hr
	55.Anti malarial discipline and orders regarding stores and .equipment	01 Hr
	56..Anti adult measures.	01 Hr
	57.DDT , BHC as insecticides and their formulation .	01 Hr
	58.Preparation of DDT solution /suspension.	01 Hr
	59.Spraying equipments , their working and maintenance.	-
	60.Preparation of DDT solution (practical).	-
	61.Techniques of DDT spraying.	01 Hr
	62.DDT spraying.	01 Hr
	63.Pyrethrum formulation and use.	01 Hr
	64.Anti larval measures.	01 Hr
	65.Chemical larvicide.	01 Hr
	66.Oiling and DDT spraying for anti larval measures .	01 Hr
	67.Anti malaria drainage and dry day.	01 Hr
	68.Anti Malaria drainage and dry day.	01 Hr
	69.Field work – mosquito larval collection.	-
70.Museum- Insecticides section.	-	
71.NMEP.	01 Hr	

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PAPER 2nd Theory General Sanitation.	Topics	Hours.
4. Disinfection and disinfestations.	72.Object of disinfection and disinfestations .	02 Hrs
	73.Physical methods of disinfection.	02 Hrs
	74.TOT disinfector –Demo area.	03 Hrs
	75.Field portable disinfector MIL III .	03 Hrs
	76.Practical work of TOT disinfector by trainees.	-
	77.Various methods of improvised disinfectors.	03 Hrs
	78.Chemical and gaseous disinfectants.	03 Hrs
	79.Methods of disinfecting virus infected articles.	03 Hrs
	80.Methods of carrying local and complete disinfection.	03 Hrs
	81.Practice in conducting local and complete disinfection.	03 Hrs
5. Hygiene inspection.	82.General principles of carrying out hygiene inspection and method of writing hygiene report on sanitary inspection .	07 Hrs
	83.Hygiene inspections of living accommodation ,recreation and information room, cook houses , dining hall ,messes , ration stores ,canteen.	08 Hrs
	84.Hygiene inspection of latrines , urinals ,bathrooms & barber shops.	07 Hrs
	84.Hygiene inspection of married quarters and unit institutions.	07 Hrs
	85.Hygiene inspection of mineral water and ice factory.	07 Hrs
	86.Hygiene inspection of restaurant.	07 Hrs
	87.Hygiene inspection of school.	07 Hrs
	88.Sanitary inspection and submission of report (practical).	-

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PAPER 2nd Theory General Sanitation.	Topics	Hours.
6.Hygiene of movement.	89.Hygiene of movement.	02 Hrs
	90.Hygiene of the movement by Rail ,Ship & Air.	03 Hrs
7.Personal hygiene and snake bite and its first aid.	91.Personal hygiene /museum / film-personal hygiene.	05 Hrs
	92.The important poisonous snakes of India and how to distinguish a poisonous from non-poisonous snakes.	03 Hrs
	93.First aid of snake bite.	02 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 3rd Theory Minor Sanitary Engineering	Topics	Hours.
1. Water supply.	1.Sources and protection of water supply.	04 Hrs
	2.Requirement and distribution .	04 Hrs
	3.Purification of water.	04 Hrs
	4.Sedimentation of water (Lecture/Demonstration).	04 Hrs
	5.Filtration of water.	04 Hrs
	6.Horrock's test.	04 Hrs
	7.Sterilization of water by chlorine.	04 Hrs
	8.Water purification in the field (Two tank method).	04 Hrs
	9.Sterilization of water in containers.	04 Hrs
	10.Museum- Water section.	-
	11.Water Tank/ Trucks and filters.	04 Hrs
	12.Establishment of water point.	04 Hrs
	13.Demo area- water point.	-
	14.Estimation of Chlorine in bleaching powder.	04 Hrs
	15.Preparation of cadmium iodide and starch solution.	04 Hrs
	16.Individual water sterilizing out fit.	04 Hrs
	17.Sampling of water for chemical and bacteriological examination.	04 Hrs
	18.Visit- Civil water works.	-

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 3rd Theory Minor Sanitary Engineering	Topics	Hours.
2.Disposal of waste products.	19.Disposal of waste products, General principles and methods employed.	04 Hrs
	20.Disposal of human feaces .	02 Hrs
	21.Water carriage system, house drainage, various sanitary appliances used.	04 Hrs
	22.Testing of house drains.	02 Hrs
	23.Disposal of sewage (Sewage works).	02 Hrs
	24.Visit to sewage disposal plant.	-
	25.Septic tanks, designs, construction and disposal of effluent.	02 Hrs
	26.Aqua privy.	02 Hrs
	27.Removal system, pan type, collection and disposal by trenching composting and incineration.	02 Hrs
	28.Visit trenching ground.	-
	29.Nitrogen cycle.	02 Hrs
	30.Disposal of human feaces in semi permanent camp.	02 Hrs
	31..Deep trench latrine- construction, maintenance.	02 Hrs
	32..Bore hole and built up deep trench latrine.	02 Hrs
	33..Disposal of human urine in semi permanent camp, funnel urinal, urinal through urinal.	02 Hrs
	34..Disposal of human excreta in camp.	02 Hrs
	35.Shallow trench latrine, incinerator latrine.	02 Hrs
	18.Demo area- excreta disposal section.	-
	19.Rural latrine	02 Hrs
	20.Improvised sanitary appliances used in the field (Demo area).	02 Hrs
	21.Disposal of animal excreta, tight pack.	02 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 3rd Theory Minor Sanitary Engineering	Topics	Hours.
3. Disposal of non- excremental refuse.	22. Disposal of solid refuse- collection, removal and disposal.	05 Hrs
	23. Various incineration used in the field construction maintenance.	05 Hrs
	24. Beehive incinerator.	05 Hrs
	25. Demo area- Incinerator section.	-
	26. Disposal of liquid waste.	05 Hrs
	27. Cold water grease trap and working principle construction and maintenance.	05 Hrs
	28. Soakage pit- construction and maintenance.	05 Hrs
	29. Demo area liquid waste collection.	-
	30. Improvised grease trap.	05 Hrs
	31. Museum- disposal of refuse section.	-
4. Ventilation, lighting and heating.	32. Disposal of dead bodies and carcasses.	05 Hrs
	33. Air composition , pollution of air and their effects on health , temperature.	15 Hrs
	34. The principles of ventilation , type of ventilation and simple methods of warming , lighting and ventilation.	20 Hrs

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 4th Theory Preventive medicine and public health administration	Topics	Hours.
1.Communicable disease03s.	1.Epidemiology	02 Hrs
	2.Classification of diseases – chain of infection .	02 Hrs
	3.Definitions –patients ,missed cases ,carriers ,contacts , incubation period, isolation, quarantine ad surveillance, epidemics ,endemics, pandemics.	03 Hrs
	4.Excremental diseases and general control measures.	02 Hrs
	5.Cholera –prevention and control.	02 Hrs
	6.Dysentery and diarrhea–prevention and control.	02 Hrs
	7.Infectious hepatitis–prevention and control.	02 Hrs
	8.Poliomyelitis –prevention and control.	02 Hrs
	9.Intestinal worm diseases(Helmenthiasis) –prevention and control.	02 Hrs
	10.Air borne diseases and general control measures.	02 Hrs
	11.Tuberculosis –prevention and control.	01 Hr
	12.B. C. G.	01 Hr
	13.Small pox –prevention and control.	01 Hr
	14.Chicken pox –prevention and control.	01 Hr
	15.Measles –prevention and control.	01 Hr
	16.Mumps –prevention and control.	01 Hr
	17.Influenza –prevention and control.	01 Hr
	18.Whooping cough –prevention and control.	01 Hr
	19.Diphtheria –prevention and control.	01 Hr

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 4th Theory Preventive medicine and public health administration	Topics	Hours.	
2.Non-communicable diseases and conditions.	20.Cancer –prevention and control.	04 Hrs	
	21.Cardiovascular diseases.	04 Hrs	
	22.Diabetes	04 Hrs	
	23.Blindness	04 Hrs	
	24.Accidents	04 Hrs	
	3.Contact diseases.	25.STD –prevention and control.	03 Hrs
		26.Scabies –prevention and control.	03 Hrs
		27.Other skin diseases.	02 Hrs
		28.Leprosy.	02 Hrs
	4.Mental health.	29.Warning signals of poor mental health and causes of mental health.	02 Hrs
		30.Mental health services , alcoholism and drug dependency.	03 Hrs
	5.Occupational health.	31.Occupational health and diseases.	05 Hrs
32.Measures for the general health protection of workers ,prevention of occupational diseases.		10 Hrs	

Details of Curriculum for First Year Diploma in Sanitation Technician

PAPER 4th Theory Preventive medicine and public health administration	Topics	Hours.
6. Insect borne diseases and animal borne diseases.	33. Filariasis –prevention and control.	02 Hrs
	34. Dengue –prevention and control.	02 Hrs
	35. Yellow fever –prevention and control.	02 Hrs
	36. Other viral diseases –prevention and control.	02 Hrs
	37. Relapsing fever –prevention and control.	02 Hrs
	38. Sand fly fever –prevention and control.	02 Hrs
	39. Plague –prevention and control.	02 Hrs
	40. Scrub typhus –prevention and control.	02 Hrs
	41. Louse borne diseases.	01 Hr
	42. Murine typhus.	01 Hr
	43. DBP application drill(demo/pract).	-
	44. Rabies –prevention and control.	01 Hr
	45. Tetanus –prevention and control.	01 Hr
	46. Anthrax –prevention and control.	01 Hr
	47. Undulant fever –prevention and control.	01 Hr
	48. Leishmaniasis –prevention and control.	01 Hr
	49. Rat bite fever –prevention and control.	01 Hr
	50. Rodent control.	01 Hr
	51. Laboratory work.	-
	52. Museum/ film- Scrub typhus.	-

**Details of Curriculum for First Year
Diploma in Sanitation Technician**

PAPER 4th Theory Preventive medicine and public health administration	Topics	Hours.
7.Immunology.	53.Elementary immunology.	02 Hrs
	54.Inoculation and vaccination.	04 Hrs
	55.Techniques of vaccination.	04 Hrs
8.Health education.	56..Importance of health education in relation to environmental sanitation.	03 Hrs
	57.Tools and techniques in health education.	04 Hrs
	58.Preparing charts, demonstration of audiovisual aids, posters and film etc.	04 Hrs
	59.Organization meetings and how to deliver on health.	04 Hrs
	60.Importance and use of vital statistics collection, compilation and presentation.	03 Hrs
	61.Calculation of rates.	03 Hrs
	62.Other statistic related to health.	03 Hrs
	63.Population statistics.	03 Hrs
	64.Charts and diagrams.	03 Hrs
	9.Vital statistics.	65.Micro-Organisms, their structure.
66.Disease producing organisms, Pathogenicity, Virulence and growth in culture media.		07 Hrs
67.Family planning and necessity.		03 Hrs
10.Elementary bacteriology.	68.General out lines of the methods:- Non surgical methods-use of contraception and safe period etc Surgical methods and MTP.	07 Hrs
	69.Rural or village sanitation.	05 Hrs
11.Family planning.	70.Fair and Festivals.	05 Hrs
12.Rural or Village sanitation, fair & festivals.		

Curriculum
for
Practical :- First Year
Diploma in Sanitation Technician

	Topics
Practical	1. Anatomy and Physiology.
	2. General Sanitation.
	3. Minor Sanitary Engineering.
	4. Preventive Medicine & Public Health Administration.