Choice Based Credit System (CBCS)

NOWGONG COLLEGE
(AUTONOMOUS)

SYLLABUS

DEPARTMENT OF B. Voc. COURSES

Learning Outcomes-based Curriculum Framework (LOCF)
of
Undergraduate Programme

BACHELOR OF VOCATION IN NUTRITION AND HEALTH CARE SCIENCE

(Effective from Academic Year 2020-21)

Syllabus Approved in Academic Council
Nowgong College (Autonomous)

Syllabus for B. Voc. in Nutrition and Healthcare Science

Course and Credit Structure

Semester	Regular Core Course 12 × 6 = 72	Ability Enhancement Course 2 × 4 = 8	Skill Enhancement Course 4 × 4 = 16	Discipline Specific Elective Course 6× 6 = 36
1st	Course:1 NHCS-RCC-1016 Course:2 NHCS-RCC-1026 Course:3 NHCS-RCC-1036	Communicative English/Communicative MIL ENGL-AEC-1014 ASSA-AEC-1014 HIND-AEC-1014 BENG-AEC-1014		
2nd	Course:1 NHCS-RCC-2016 Course:2 NHCS-RCC-2026 Course:3 NHCS-RCC-2036	ENST-AEC-2014		
3rd	Course:1 NHCS-RCC-3016 Course:2 NHCS-RCC-3026 Course:3 NHCS-RCC-3036		XXXX-SEC-3014	
4th	Course:1 NHCS-RCC-4016 Course:2 NHCS-RCC-4026 Course:3 NHCS-RCC-4036		XXXX-SEC-4014	
5th			XXXX-SEC-5014	Course:1 NHCS-RDS-5016 Course:2 NHCS-RDS-5026 Course:3 NHCS-RDS-5036
6th			XXXX-SEC-6014	Course:1 NHCS-RDS-6016 Course:2 NHCS-RDS-6026 Course:3 NHCS-RDS-6036

SEMESTER-I

PAPER CODE: NHCS-RCC-1016

ANATOMY AND PHYSIOLOGY

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about human anatomy and physiology

LEARNING OUTCOME:

In this paper the students will learn about human anatomy and physiology.

CONTENTS

THEORY

UNIT 1 Animal Organism:
Study of the structure of a cell in general: cell membrane, Nuclear membrane, Nucleus, Cytoplasm. Physiology of the cell: Introduction, objectives (definition of Physiology – tissue, organs and system), Morphology & function of cell, types and importance of Intracellular junction, transport mechanism across the cell, Chemical messengers, Ion channels in the cell and their physiological importance.

UNIT 2 Circulatory system: Introduction, objectives, functional organization, initiation of heart beat, electrocardiogram, heart as a pump, cardiac output, haemodialysis, blood pressure, special circulation. Blood: Introduction, objectives, Composition of blood, red blood cell, white blood cell, blood coagulation.

UNIT 3 Respiratory system: Nasal cavity, Larynx, Trachea, Lungs, Diaphragm, Respiration.

UNIT 4 Digestive system: Introduction (Oral cavity & palate, Pharynx and Esophagus,

Stomach and Intestine, Glands of digestive system), structure of G.I tract, functions, motility/movement, secretion, digestion, and Absorption. Regulation of secretions and movement, details of individual organ structure and function.

UNIT 5 Functional anatomy of Kidney: Introduction, objectives, functional anatomy of kidney, mechanism of urine formation.

UNIT 6 Reproductive system: Male reproductive system, Female reproductive system.

UNIT 7 Nervous system: Brain and its part, Ventricles of the brain, Spinal cord, Cranial nerves, Peripheral nerves, Automatic nervous system.

UNIT 8 Endocrine system: Introduction, objectives, importance of endocrine glands, endocrine hormones, classification & functions, target organs.

PRACTICAL

1. To Study animal Cell/Tissue through permanent slides
2. To Study digestive system through model
3. To Study different blood cells
4. Total count of RBC and WBC
5. To Study endocrine gland through permanent slides
6. To study the effect of isotonic, hypertonic and hypotonic solution, acid and alkali on RBC

SEMESTER-I

PAPER CODE: NHCS-RCC-1026

BIOCHEMISTRY

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about laboratory maintenance, preparation of solutions, glassware etc.

LEARNING OUTCOME:

In this paper the students will learn about laboratory maintenance, preparation of solutions, glassware etc.

CONTENTS

THEORY

UNIT 1 Introduction to Biochemistry Laboratory: Laboratory safety instructions and First Aid Identification of chemicals, equipment, glassware etc., maintenance of stock book, storing, issue, condemnation of broken and useless items etc., Purity of reagents and chemicals. Glassware & Plastic ware: Identification of Laboratory glassware, drawing diagrams of various glassware like different types of pipettes, burettes, conical flasks, beakers, funnel, test tubes, centrifuge tubes, etc. Plasticware in laboratory. A-Glass, B- Glass and unmarked glass, Soda glass, Borosilicate glass, fint glass etc., Automatic pipettes, burettes and sample dispensers, methods to use all the above. Cleaning solutions: cleaning glassware and plastic ware, different cleaning solutions. Washing, rinsing and drying the glassware and plasticware.

UNIT 2 Preparation of solution: Units and Measurements: SI Units, Units for mass and weight, volume, length and time. Balance: Use of common balance, electric balance Perishable and refrigerated chemicals and their handling Preparation of Standard solutions: Molar and Normal solutions, Molecular weight, Valency, Equivalent weight, preparation of 0.1 N Oxalic acid, 0.5M

NaCl etc., % solutions, hygroscopic compounds, preparation of 0.1N NaOH, 0.1N HCl Titrations: Acid- alkali titrations, use of indicators, calculations. pH and buffers: Concept of titrable acidity, alkalinity and pH.

UNIT 3 Maintenance and usage of lab equipments: Instruments: Use of maintenance of centrifuge, ovens, incubator, water baths, cold centrifuge, ultracentrifuge, water distillation units, water deionizer, desiccators, desiccants etc. Colorimetry, Absorbtiometry: Introduction to Absorbtiometry and Colorimetry. Maintenance of colorimeters and spectrophotometers, Spare parts for these equipments, verification of Beer's law. Fluorimetry, Nephelometry, conductometry, dialysis, ultra filtration, flame photometry, turbidometry etc.

UNIT 4 Carbohydrate &Lipid metabolism: Definition, chemistry, digestion, Absorption, storage and utilization, normal blood sugar, estimation of blood sugar, methods – modified Folin-Wu method, classification lipid peroxidation, Functions of lipid in general, fats and cholesterol in particular, Essential fatty acids and their importance, dietary sources of lipoproteins, Hyperlipoproteimemias, Denovo synthesis of fatty acid as alternate energy source: metabolism of ketone bodies, Lipids in coronary heart disease and cancer, important metabolic disorder: Fatty liver andketosis.

UNIT 5 Kidney function test:Definition, chemistry, estimation of blood urea, determination by Hench-Aldrich method, Diacetylmonoxime method, Urease and Bertholet reaction, Estimation of Serum Creatinine

UNIT 6 Abnormal constitute of urine: Qualitative Tests

UNIT 7 Collection of specimen, storage and mailing, Quality control:
Collection of specimen, storage and mailing, Quality control

PRACTICAL

1. To Prepare the Standard solutions: Molar and Normal solutions, Preparation of buffers of different pH and morality, Preparation of percentage solution.
2. To estimate of Glucose by all the methods
3. To determine the different volumetric titrations
4. To estimate the Urea in urine
5. To estimate the blood Creatinine
6. To study the qualitative test for abnormal urine
7. To study the identification and working principles of lab equipment
8. Estimation of SGOT & SGPT
9. Estimation of Protein
10. Estimation of Bilirubin

Suggested Readings:

1. Albert L. Lehninger, David L. Nelson, and Michael M. Cox, ***Lehninzer Principles of Biochemistry***, 8th Edition, MacMillan Learning Pvt. Ltd., 2021
2. U Satyanarayana, Biochemistry, 2nd edition, Books and allied (P). 2004.
3. A. White Philip Handler, E.L. Smith, R.L. Hill Lehman, Principles of Biochemistry, 6th Edition, Tata McGraw Hill Publishing Company Ltd.,2004.
4. D.L. Nelson, M.M. Cox, Lehninger Principles of Biochemistry, 4th edition, W.H, Freeman &Company,2005.
5. P.C. Champe, R.A. Harvey, Biochemistry, 2nd edition, Lippincott-RavenPublishers, 1994

SEMESTER-I

PAPER CODE: NHCS-RCC-1036

MICROBIOLOGY I

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about microscope, sterilization techniques etc

LEARNING OUTCOME:

In this paper the students will learn about microscope, sterilization techniques etc.

CONTENTS

THEORY

UNIT 1 Microscope: Simple & Compound microscope, Binocular microscope, Trinocular microscope, Fluorescence microscope & Dark field microscope, Electron Microscope Handling and Maintenance of microscope.

UNIT 2 Types of Sterilization: Dry Sterilization, Moist Sterilization, Mechanical Sterilization, Chemical Sterilization, Filtration Sterilization, Gas Sterilization.

UNIT 3 Safety precaution in a Bacteriology laboratory: Space, Ventilation, Light, Water, Working bench Safety precaution in a Bacteriology laboratory, Staining - Preparation of stains, Simple stain, Special stain, Gram's stain, Albert's stain, ZN stain, Modified ZN stain & Lacto phenol cotton blue.

UNIT 4 Morphology and distribution of bacteria: Cocci- Gram's positive Cocci, Cocci – pairs. Chains and clusters arrangement & Gram's negative Cocci – kidney shape intracellular, Bacilli -Gram's positive Bacilli – clostridia species , Gram's negative Bacilli,Entero- bactericea& others Yeast and Molds (fungi) & Virology – cell line

UNIT 5 General properties of Bacteria: Food, Moisture, Hydrogen ion concentration,

Oxygen requirement, Carbon dioxide, Temperature, Light, Symbiosis, Product of Bacterial growth.

UNIT 6 Preparation of culture media: Nutrient broth, Nutrient agar, Blood agar, Chocolate agar, Mac Coney's agar, SSA, XLD, TCBS, Tellurite agar, EMB agar, MHA, RCM, Alkaline peptone water, Thioglycolate, LJ-media, Peptone, Mannitol, TSI, Citrate, Urease & SDA

PRACTICAL

1. To study the cleaning of articles, packing, distribution of articles, loading the articles, hot air oven, Autoclave etc. and sterilization
2. To study the preparation of different stains: simple stain, differential stain, Albert's stain, ZN stain, Modified ZN stain & Lacto phenol cotton blue
3. To study the preparation, fixation and staining of smear microscopy

SEMESTER-II

PAPER CODE: NHCS-RCC-2016

CLINICAL PATHOLOGY I

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about clinical pathology, blood cells etc.

LEARNING OUTCOME:

In this paper the students will learn about clinical pathology, blood cells etc.

CONTENTS

THEORY

UNIT 1 Introduction of Clinical Pathology: Clinical laboratory diagnosis, laboratory apparatus, lab accidents- cause and prevention, First-Aid, washing of laboratory apparatus

UNIT 2 The constituents of blood: RBC, WBC, Platelet and plasma, function of plasma, RBC or Erythrocyte– the structure and physiology, functions. WBC or Leucocytes – Neutrophils, Lymphocyte, Monocyte, Eosinophil and Basophil. Platelets. General account of Anemia.

UNIT 3 Anticoagulant or calcium chelators: Oxalates, Ammonium Oxalates, Potassium Oxalates, Balanced Oxalates, EDTA (Ethylene Diamine Tetra Acetic acid), sodium citrate, and Heparin

UNIT 4 Types of stains and preparation: Wright's stain. Leishman's stain, Giemsa stain Field's stain

UNIT 5 Blood collection, Preparation of smear and staining of a blood smear: Thick smear and thin smear, mounting and preservation of smear

UNIT 6 Red Blood cells count: Improved Neubauer Chamber, cover slip, diluting fluids,dilution, charging,counting.WBC diluting fluids, dilution, charging, counting, and Platelets diluting fluids, dilution,charging,counting.

UNIT 7 Estimation of haemoglobin: Definition hemoglobin. Methods of estimation of hemoglobin – Colorimetric method- Tallqvist method, Sahli's or Acid Haematin method, alkaline haematin method, Haldane method, Dare method, Spencer method, Photo electric method, Oxyhaemoglobin method, Cyanmetheamoglobin method, preparation of standards, Specific gravity method, and Chemical method.

UNIT 8 Estimation of PCV or Haematocrit and erythrocyte indices: Methods of Estimation of PCV or Haematocrit, Wintrobe's method, Microhaematocrit or capillary method, Mean corpuscular volume (MCV) Mean corpuscular hemoglobin (MCH) Mean corpuscular hemoglobin concentration (MCHC).

UNIT 9 Erythrocyte sedimentation rate (ESR): Methods of estimation of ESR, factor influencing sedimentation, laboratory factors which influence ESR, importance, clinical significance.

UNIT 10 Urine and faecal examination: Physical & microscopic examinations.

PRACTICAL

1. To study the technique of blood sample collection
2. To prepare and staining of blood smear
3. Total count of RBC, WBC and Platelet
4. Estimation of haemoglobin by Sahli's method &Cyanmetheamoglobin
5. To study the blood grouping front and backtyping
6. To study the determination of ESR
7. To study the determination the Rh typing and Du test
8. To study the Urine examination and faecal examination

SEMESTER-II

PAPER CODE: NHCS-RCC-2026

CLINICAL PATHOLOGY-II

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about leukemia, anemia etc

LEARNING OUTCOME:

In this paper the students will learn about leukemia, anemia etc.

CONTENTS

THEORY

UNIT 1 Osmotic Fragility test: Quantitative test, Principle, Method, factors affecting Osmotic Fragility test, interpretation.

UNIT 2 Anemia: Definition, classification, morphological classification. Etiological classification, iron deficiency anemia, megaloblastic anemia.

UNIT 3 Leukemia: Definition, classification, AML, CML, ALL.

UNIT 4 Coagulation introductions: Coagulation factors, functions, Studies of haemostasis and coagulation, whole blood coagulation time, methods, BT, CT. PT, APTT and FDP.

UNIT 5 Urine and faecal examination: Physical & microscopic examinations.

PRACTICAL

1. To study the osmotic fragility test
2. To study the blood smear examination
3. To study the BT, CT, PT, APTT and FDP test
4. To study the Blood grouping front and back typing
5. To study the Rh typing and Du test
6. To study the direct coomb's test
7. To study the Cross matching (saline and albumin)
8. To study the indirect coomb's test
9. To study the Semen and body fluid analysis
10. To study the Urine and faecal examination.
11. To study the measurement of Blood Pressure

SEMESTER-II

PAPER CODE: NHCS-RCC-2036

HISTOPATHOLOGY AND CYTOLOGY

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about nutrition, nutrients, diabetes, diabetes management, dental care and kidney diseases

LEARNING OUTCOME:

In this paper the students will learn about nutrition, nutrients, diabetes. Diabetes management,dental care and kidney diseases.

CONTENTS

THEORY

UNIT 1 Cell structure and its function:
Fixatives: Definition of fixatives, its aims and objective, classification of fixatives Simple fixative – Aldehydes
Compound fixatives – classification of compound fixative

a) Micro anatomical fixatives – 10% formalin, 10% formal saline, and 10% buffered formalin etc.
b) Cytological fixatives – classification of cytological fixative: Nuclear fixative, Cytoplasmic fixative , Histochemical fixative

UNIT 2 Tissue processing: Collection, Labelling and Fixation of specimen; Dehydration; Dehydrating agents; Clearing; Impregnation and infiltration; Embedding

UNIT 3 Section cutting: Microtome knives, sharpening, honing and stropping, fine trimming, fine cutting and picking up sections; Microtome's and Technique of section cutting

UNIT 4 Dyes and their properties: Purpose of staining, physical and chemical theory of staining Classification of dyes – natural dye, haematoxylin & Eosin staining, Types of Eosin and their preparation

UNIT 5 Exfoliative cytology:Exfoliative cytology, collection, preservation, fixation and production of smear – papanicolaou's staining procedure.

PRACTICAL

1. To study the preparation of fixative
2. To study the preparation of de-calcifier
3. To study the Tissue processing – dehydration, clearing impregnation, embedding
4. To study the Microtome's and sharpening of the knives
5. To study the Technique of section cutting
6. To study the Staining:

a) H&E staining
b) PAS stain,
c) VAN Gibson stain

SEMESTER-III

PAPER CODE: NHCS-RCC-3016

NUTRITION AND DIABETES EDUCATOR-I

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about nutrition, nutrients, electrolytes, public health problems etc.

LEARNING OUTCOME:

In this paper the students will learn about nutrition, nutrients, electrolytes, public health problems etc.

CONTENTS

THEORY

UNIT 1 Introduction to Nutrition: Balanced diet, knowledge of different food groups and their nutritive values Functions of food in relation to health - classification of foods, based on nutrients. Food groups - Basic five, the food pyramid.

UNIT 2 Introduction of macronutrient and micronutrients: Nutritive value of Macronutrient and their conversion to nutritive molecules, (Carbohydrates, Protein, Lipids), Nutritive value of Micronutrient and their importance

UNIT 3 Management of nutrition – calorie, diet sheet:
Understanding of proximate composition, balanced diet, calorie calculation of foods, food exchange list, Recommended Dietary guideline

UNIT 4 Regulation of Fluid and Electrolyte balance:
Electrolytes, sodium, potassium, chloride, water, role of kidney

UNIT 5 Neutraceutical requirements: Antioxidants, Immune boosters, Prebiotics & Probiotics

UNIT 6 Food, Nutrient and Drugs Interactions:
Do's and don'ts during diet planning for treatment of patients, Effects of drugs on nutrients

UNIT 7 Role of educator in controlling Diabetics:
Multidisciplinary team approach to Diabetes Education describing the diabetes disease process and treatment option. Incorporating appropriate nutrition management. Goal setting to promote health, problem solving and daily living.

UNIT 8 Public Health Problems:
Identifying individuals at high risk for type 2 Diabetes, Evidence for type 2 Diabetes prevention. The Community and health care facility.

UNIT 9 Nutritional disorders:
Disease due to deficiency of macronutrient and micronutrient

UNIT 10 Therapeutic Nutrition:
Nutritional assessments of patients, Rights of the patients, Basic Knowledge on nutrition assessments of patients (energy, protein or any specific nutrient requirements/restrictions)

UNIT 11 Pathophysiology of Diabetes
Types and causes, Disease process, Diagnostic criteria, Screening for Diabetes – why, when and how? (Urine sugar and blood sugar), Continuum of care (primary, secondary, tertiary, prevention)

UNIT 12 Management of Diabetes
Overview: Aims of treatment, the importance of overall metabolic control, internationally recognized standards of care. The evidence for good control, physical assessment and laboratory assessment

PRACTICAL

a. To study the different types of food source (carbohydrate, protein, fat and vitamins)

b. To study the Urine and Blood sugar test

c. To study the Albumin test(Urine)

d. To study of laboratory instruments

SEMESTER-III

PAPER CODE: NHCS-RCC-3026

CARDIAC TECHNOLOGY I

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about ECG, Cardiac disorders etc.

LEARNING OUTCOME:

In this paper the students will learn about ECG, Cardiac disorders etc.

CONTENTS

THEORY

UNIT 1 Introduction to Cardiovascular Diseases:
Types of Cardiovascular disease, causes, symptoms and treatment

UNIT 2 Anti-diuretic agents:
Diuretics-furosemide, torsamide, thiazide diuretics, metolazone, spironolactone, combination diuretics Angiotensin converting enzyme (ACE) inhibitors – captopril , Enalapril, ramipril, lisinopril, ACE inhibitors for diabetics and hypertensive renal disease , Digitalis and acute ionotropes – digoxin, odoubutamine, dopamine, adrenaline, noradrenaline, isoprenaline

UNIT 3 Anti-hypertensive drugs:
Diuretics, beta-blockers, ACE inhibitors, calcium antagonists, direct Vasodilators, centrally acting and peripherally acting vasodilators

UNIT 4 Anti- arrhythmic agents:
Amiodarone, adenosine, verapamil, dilteazem, lidocaine, mexiletine,Phenytoin, flecainide, bretylium,atropine

UNIT 5 Antithrombotic agents:
Platelet inhibitors: aspirin, clopidogrel ,Anticoagulants: heparin, low molecular weight heparin, warfarin Fibrinolytics: streptokinase, urokinase , glycoprotein 2b3a antagonists: abciximab, tirofiban, eptifibatide

UNIT 6 Lipid lowering and anti-atherosclerotic drugs:
Statins, exetimibe, niacin, fenofibrate

UNIT 7 Miscellaneous drugs:
Protamine , Narcotics: morphine, pethidine, fentanyl , Sedatives: diazepam, midazolam Steroids: hydrocortisone, oprednisolone, Antihistamines: diphenhydramine , Antibiotics: pecicillins, cephalosporins, aminoglycosides , Antacids and proton pump inhibitors , Anaesthetic agents: local, general

UNIT 8 Medical electronics, biophysics and computer usage relevant to cardiac technology: Introduction to medical physics, Blood pressure recording, Pressure transducers, Defibrillators, Cathode ray tubes and physiological monitors, Impedence plethysmo-graphy, Pulse oximetry. Medical ultrasound and Doppler, Ionic currents and Electrocardiography, Electrocardiographic processing and display system, Radiation physics, Techniques of monitoring radiation exposure. Measures to reduce radiation exposure, Computer use in medical care and data entry.

UNIT 9 BASIC ELECTROCARDIOGRAPHY (ECG):
Fundamental principles of electrocardiography, Cardiac electrical field generation during activation, Cardiac wave fronts, Cardiac electrical field generation during ventricular recovery. Electrocardiographic lead systems, Standard limb leads, Precordial leads and the Wisdom central termina , Augmented limb leads, The hex axial reference frame and electrical axis , Recording adult and pediatric ECGs ,The normal electrocardiogram , Atrial activation, The normal P wave , Artial repolarisation , Atrioventricular node conduction and the PR segment,Ventricular activation and the QRS complex, Ventricular recovery and ST-T wave, U wave, Normal variants, Rate and rhythm

PRACTICAL

a. To study of different equipment for cardio vascular test
b. To study the measurement of blood pressure and oxygen level of different age group
c. To study the ECG
d. To study the Electrocardiograph of different age group
e. To study the heart rate and kymograph

SEMESTER-III

PAPER CODE: NHCS-RCC-3036

QUALITY IN HEALTH CARE- DOCUMENTATION& HOSPITAL INFECTION CONTROL

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about documentation in health care

LEARNING OUTCOME:

In this paper the students will learn about documentation in health care

CONTENTS

THEORY

UNIT 1 Aspects of Documentation: Ethics and Documentation, Patients Health Care Information , Common standards for documentation, Skills Used in Documentation, Legal Protection in documentation, Institutional Protocols and documentation, Rules in keeping medical records , Legal Aspects of Charting, Documentation for Medical Billing and Coding

UNIT 2 Clinical Documentation: Clinical documentation (CD) in the creation of a digital or analog, a medical treatment, medical trial or clinical test

UNIT 3 Medical Record Documentation: Purposes of Documentation in Medicine, Function of Medical Documentation, General Principles

UNIT 4 Documentation in Health Care: Definition, Principles of documentation, aim and Scope, Quality of care.

PRACTICAL

(Sample survey for medical record and clinical documentation)

SEMESTER-IV

PAPER CODE: NHCS-RCC-4016

NUTRITION AND DIABETES EDUCATOR-II

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about nutrition, nutrients, diabetes, diabetes management, dental care and kidney diseases

LEARNING OUTCOME:

In this paper the students will learn about nutrition, nutrients, diabetes. Diabetes management,dental care and kidney diseases.

CONTENTS

THEORY

UNIT I Introduction to therapeutic diet;

a) Dietary supplements, types of supplements, Adjuncts to diet therapy, Food and drug interactions, Routine hospital diets

b) Enteral nutrition, oral supplements, tube feeding and types of food for tube feeding Parenteral feeding, Total Parenteral Nutrition (TPN) TPN formula for children and adults, Pre and Post-operative diets.

UNIT II Diet in Infections and Fevers;

a) Causes, Types, General dietary guidelines, Diet in typhoid, Influenza, Malaria, Tuberculosis, AIDS

b) Diet in mal absorption; Steatorrhoea, lactose intolerance, coeliac disease, tropical sprue, Irritable bowel syndrome, inflammatory bowel diseases, intestinal gas and flatulence.

UNIT III Diet in Diabetes Mellitus;

a) Prevalence, Types, Etiology, Symptoms, Diagnosis, Glycemic index, Glycemic load of foods, Blood glucose Monitoring

b) Dietary principles and Nutritional management, Glycemic index, Glycemic load of foods, Artificial sweeteners, complications

UNIT IV Diet in Kidney Diseases;

a) Biochemical assessment of kidney function, Clinical symptoms,

b) Principles of dietary management for acute and chronic renal failure, Dialysis--- Their types, and dietary management, renal calculi and dietary guidelines for its treatment & prevention

UNIT V Special considerations;

Diabetes in children and adolescents, Diabetes in pregnancy, Diabetes in the elderly, Diabetes & infection, Diabetes in people living in poverty, surgical considerations in Diabetes.

UNIT VI Educational and behavioral interventions;

Principles and practice of patient education, Measure and document patient outcomes, Problems and psychological evaluation in the diabetic patient, Strategies for behavioral changes, managing stress

UNIT VII Diabetes & Dental Care;

Definition, preventive measures for dental problems, important aspects of oral hygiene, nutritional modification and appropriate instruction for treating periodontal disease

UNIT VIII Practical management of Diabetes;

Dietary management, insulin and oral therapy, Avoiding and managing hypo and hyperglycemia, Self-management strategies during special situations (sick days, travel, hypoglycemic events, etc.), Self-monitoring (glycemic control & complications related to diabetes), Lifestyle issues, Newer trends in management

PRACTICAL:

1. Determination of TPN
2. ELISA Test
3. Widal Test
4. Creatinine test

SEMESTER-IV

PAPER CODE: NHCS-RCC-4026

CARDIAC TECHNOLOGY-II

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about various cardiac disorders

LEARNING OUTCOME:

In this paper the students will learn about various cardiac disorders.

CONTENTS

THEORY

UNIT I Valvular heart disease: Etiology, Acquired valvular heart disease, Rheumatic fever and rheumatic heart disease , Aortic stenosis ,Aortic regurgitation ,Mitral valve disease ,Mitral stenosis, Mitral regulation ,Mitral valve disease ,Tricuspid valve disease ,Infective endocarditis Valvuloplasty and valve surgery

UNIT-II Coronary artery diseases: Pathophysiology & clinical recognition, Angina pectoris, symptomatic & asymptomatic myocardial ischemis,types and locations of myocardial infractions, thrombolytic therapy ,medical treatment, percutaneous interventions, surgical treatment, cardiac rehabitation.

UNIT III Systemic hypertension: Essential and secondary hypertension, Heart failure: Surgical and medical treatment, Pulmonary hypertention.

UNIT IV Myocardial diseases: Dilated cardiomyopathy, Hypertrophic cardiomyopathy, Restrictive cardiomyopathy, Myocarditis. Pericardial Diseases: Pericardial effusion, Constrictive pericarditis, Cardiac tapenade.

UNIT V Electrical disturbances of the heart: Sinus node dysfunction, Arrhythmia disturbances, Treatment of arrhythmias – pharmacological,radio frequency ablation and surgery.

PRACTICAL:

1. Study of Rheumatic factor
2. Demonstration of Pulmonary cardiomyopathy
3. Demonstration of pulmonary hypertension

SEMESTER-IV

PAPER CODE: NHCS-RCC-4036

QUALITY IN HEALTH CARE- BIO-WASTE& HOSPITAL INFECTION CONTROL

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about bio waste, bio waste management, country wise regulation and management of bio waste and different environmental impacts.

LEARNING OUTCOME:

In this paper the students will learn about bio waste, bio waste management, country wise regulation and management of bio waste and different environmental impacts.

CONTENTS

THEORY

UNIT 1 Bio-waste: Types, medical bio-waste, sources, Effects on human

UNIT 2 Bio-waste Management and Control, On-site versus off-site, Generation and accumulation, Storage Treatment

UNIT 3 Country-wise regulation and management with special reference to United Kingdom(UK)(England),United States of America, India, Singapore

UNIT 4 Environmental impacts: The syringe tide environmental disaster, Effects of medical environment, Incineration-Methods of biomedical waste incineration, environment, Environmental waste in India-Medical waste program, Environmentally, Other

PRACTICAL:

1. Study of different bio and medical waste
2. Field study

SEMESTER-V

PAPER CODE: NHCS-RDS-5016

NUTRITION AND DIABETIC EDUCATION-III

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about community nutrition, addiction, basic dietetics, etc.

LEARNING OUTCOME:

In this paper the students will learn about community nutrition, addiction, basic dietetics, etc.

CONTENTS

THEORY

UNIT I Community nutrition:

Nutrition and health in National development. Malnutrition- meaning. Factors contributing to malnutrition, over nutrition. Nutritional disorders- Epidemiology, clinical features, prevention and dietary treatment for Protein Energy malnutrition, nutritional anaemia's& vitamin deficiency disorders. Methods of assessing nutritional status: Sampling techniques, Identifications of risk groups, Direct assessment - Diet surveys, anthropometric, clinical and biochemical estimation. Indirect assessment- Food balance sheet, ecological parameters and vital statistics

UNIT II

Nutrition in burns and surgery. Nutrition - Addictive behaviour in anorexia, nervosa, bulimia & alcoholism. Nutrient drug interaction. Feeding the patients - Psychology of feeding the patient, assessment of patient needs. Feeding infants & children - problems in feeding children in hospitals. Nutrition & diet clinics - Patients checkup and dietary counseling, educating the patient and follow up

UNIT III Basic dietetics:
Role of dietarian : The hospital & community, Basic concepts of diet therapy, Principles of diet therapy & therapeutic nutrition for changing needs, Adaptation of normal diet for changing needs, Routine hospital diets - Regular diet, light diet, full liquid and tube feeding, Modification of diet - Febrile conditions, infections and surgical conditions, Diets for gastro - intestinal disorders, constipation, diarrhoea, peptic ulcer, Diet for renal diseases - Nephritis, Nephritic syndrome and renal failure, Diet for obesity and cardiovascular disorders, Diet for Diabetes mellitus, Diet & nutrition in kidney diseases, Nutrition in cancer, Nutrition in Immune system dysfunction, AIDS &Allergy, Nutrition support in metabolic disorders.

UNIT IV Hypoglycemia & hyperglycemia:
Causes, Symptoms, Prevention & Treatment,
Developing an Individualized meal plan: Diet order, Menu setting, Supervising the diets

UNIT V Standardization of recipe:
To plan, calculate, calculate the nutritive value and demonstrate.

UNIT VI Diabetes & Dental Care:
Definition, preventive measures for dental problems, important aspects of oral hygiene, nutritional modification and appropriate instruction for treating periodontal disease

UNIT-VII
Developing an individualized meal plan: Diet order, Menu setting, Supervising the diets

PRACTICAL:

1. Field study on Community Nutrition
2. Calculations and demonstration of nutritive value of food sources

SEMESTER-V

PAPER CODE: NHCS-RDS-5026

CARDIAC TECHNOLOGY-III

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about medical electronics, biophysics, computer usage relevant to cardiac technology, Basic electrocardiography (ECG), Advanced electrocardiography (ECG)

LEARNING OUTCOME:

In this paper the students will learn about medical electronics, biophysics, computer usage relevant to cardiac technology, Basic electrocardiography (ECG), Advanced electrocardiography (ECG).

CONTENTS

THEORY

UNIT I Medical electronics, biophysics and computer usage relevant to cardiac technology:

Introduction to medical physics, Blood pressure recording, Pressure transducers, Defibrillators, Cathode ray tubes and physiological monitors, Pulse oximetry. Medical ultrasound and Doppler Techniques of monitoring radiation exposure .Measures to reduce radiation exposure, Computer use in medical care and data entry

UNIT-II Basic electrocardiography (ECG):
Fundamental principles of electrocardiography,Cardiac wave fronts, Electrocardiographic lead systems, Standard limb leads , Recording adult and pediatric ECGs ,The normal electrocardiogram ,Atrial activation, The normal P wave , Atrial repolarization , Atrioventricular node conduction and the PR segment, Ventricular activation and the QRS complex, Ventricular recovery and ST-T wave, U wave, Normal variants, Rate and rhythm.

UNIT-III Advanced electrocardiography (ECG):

The abnormal electrocardiogram, Left atrial abnormality, Right atrial abnormality, Left ventricular hypertrophy and enlargement, Right ventricular hypertrophy and enlargement, Left anterior fascicular block, Left posterior fascicular block ,Left bundle branch block ,Right bundle branch block, Myocardial ischemia and infarction Repolarization (ST-T wave) abnormalities, QRS changes, Evolution of electrocardiographic changes, Non-infarction Q waves, Primary and seconday T wave change, Cardiac arrhythmias, Complete heart block, Direct Current (DC)shock Defibrillator, Monophasic and biphasic shock, Technique of cardioversion, Indications for cardioverion .

PRACTICAL:

1. Demonstration of blood pressure recording and Pressure transducers
2. Demonstration of ultrasonography

SEMESTER-V

PAPER CODE: NHCS-RDS-5036

QUALITY IN HEALTH CARE- WORK PLACE & HOSPITAL INFECTION CONTROL
PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about quality in health, Patient perspectives and quality health care, Access to health services, Health insurance

LEARNING OUTCOME:

In this paper the students will learn about quality in health, Patient perspectives and quality health care, Access to health services, Health insurance

CONTENTS

THEORY

UNIT-I Quality in Health: Definition, Importance, Significance, Tools or indicators, Customer satisfaction, Feedback

UNIT-II
Patient perspectives and quality Health Care: Determinant in quality health care, Short and long-term policy, patient satisfaction survey.

UNIT-III

Access to Health Services: Effective, Patient centered, cost effectiveness, Efficient and Equitable, Timely service

UNIT-IV

Health Insurance: Definition, importance, plans of health insurance, health scenario in India and other developed countries.

PRACTICAL:

1. Case study and submission of report

SEMESTER-VI

PAPER CODE: NHCS-RDS-6016

NUTRITION AND DIABETIC EDUCATOR-IV

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about advanced dietetics, diet in renal diseases, diet in cardiovascular diseases etc.

LEARNING OUTCOME:

In this paper the students will learn about advanced dietetics, diet in renal diseases, diet in cardiovascular diseases, etc.

CONTENTS

THEORY

UNIT I Advanced dietetics:

Concept of Diet therapy: growth and source of dietetics, purpose and principles of Therapeutic diets, modification of normal diet, classification of therapeutic diets.
Role of Dietician: Definition of nutritional care, interpersonal relationship with patient, planning and implementary dietary care, Team approach to nutritional care.
Routine hospital diets: Preoperative and postoperative diets, study and review of hospital Diet.
Basic concepts and methods of-

(a) Oral feeding
(b) Tube feeding
(c) Parental nutrition
(d) Intravenous feeding.

Obesity and leanness- causes, complication and health effects, dietary treatment and other recommendation.

UNIT II Diet in fever and infections:

Types-metabolism in fever, general dietary consideration diet in influenza, typhoid fever, recurrent malaria and Tuberculosis. Diet in gastritis, peptic ulcer- symptoms, clinical findings, treatment, dietary modification, adequate nutrition, amount of food, and intervals of feeding, Chemically and mechanically irrigating foods, four stage diet (Liquid, soft, convalescent, liberalized diet).Diet in disturbances of small intestine and color. Diarrhea- (child and adult)- classification, modification of diet , fiber, residue. Fluids & nutritional adequacy.

UNIT III

Constipation - flatulence - dietary considerations.
Ulcerative colitis (adults) - symptoms, dietary treatment.
Spruce, coeliac disease - disaccharide intolerance, dietary treatment. Diet in diseases of the liver, gall bladder and pancreas,

a) Etiology, symptoms and dietary treatment in - Jaundice, hepatitis, cirrhosis and hepaticcoma.
b) Role of alcohol in liver diseases.
c) Dietary treatment in cholecystitis, cholelithiasis and pancreatitis

UNIT-IV

Gout - Nature and occurrence of uric acid, causes, symptoms and diet. Diet in allergy and skin disturbances: Definition, classification, manifestations, common food allergies and test and dietetic treatment. Diet in Diabetes mellitus: Hypoglycemic agent, insulin and its types. Complication of diabetes. Diet in Renal diseases: Basic renal function, symptoms and dietary treatment in acute and chronic glomerulonephritis, Nephritis, renal failure, dialysis. Urinary calculi-causes & treatment, acid and alkali producing and neutral foods and dietary treatment

UNIT-V

Diet in Cardiovascular diseases: Role of nutrition in cardiac efficiency, incidence of Atherosclerosis, dietary principles, Hyperlipidemia, Hypertension- causes and dietary treatment, Sodium restricted diet, level of sodium restriction, sources of sodium, danger of severe sodium restriction.

a) Incidence andpredisposing factors.
b) Symptoms-types and testsfor detection.
c) Metabolism indiabetes
d) Dietary treatment &meal management

UNIT VI Practical training:

Anthropometry evaluation, Diet Analysis, Diet, Review, Diet prescription, System entries, Calorific values, Demonstration of equipment, Medical history and Medicine review, Patient education, Education questionnaire, Recipe demo.

UNIT VII

Managing a Diabetes service:
The multidisciplinary team , organizing the Diabetes clinic, Documenting and monitoring the quality of care, Assessing and reporting outcomes. Research Projects on Diabetes

UNIT VIII

Insulin Delivery Devices, CGMS System & Pattern Management:
Objective, different types of Insulin Devices & their usage, benefits & drawbacks, components of CGMS, CGMS –long term & short time benefits, Newer Advances: CGMS, Pens & Pattern Management

UNIT-IX

Cardiovascular Disease and CV Risk Factors:
Macro vascular Complications, T2DM and Organ Systems, Macro vascular Disease, Atherosclerosis, Coronary Heart Disease, Coronary Heart Disease in Diabetes, Controlling Risk Factors, Use of Aspirin

PRACTICAL:

1. Study of feeding instruments
2. Study of insulin delivery device
3. Study of dialysis instrument

SEMESTER-VI

PAPER CODE: NHCS-RDS-6026

CARDIAC TECHNOLOGY-IV

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about echocardiography, cardiac catheterization basics, etc.

LEARNING OUTCOME:

In this paper the students will learn about echocardiography, cardiac catheterization basics, etc.

CONTENTS

THEORY

UNIT I

Echocardiography: M- mode and 2D transthoracic echocardiography,Doppler echocardiography,Regional wall motion abnormalities, Stroke volume and cardiac output assessment, Transvalvular gradients ,Orifice area, Continuity equation, Echocardiography in Valvular heart disease. VentTransooesophageal echocardiography

UINT II

Cardiac catheterization laboratory basics:
Type of catheters, Catheter cleaning and packing. Techniques of sterilization- advantages and disadvantages of each, Setting up the cardiac catheterization laboratory for a diagnostic study, Table movement, Image intensifier movement Image play back, Intra cardiac pressures, Pressure recording systems , Fluid filled catheters versus catheter tipped manometers, Artifacts, damping,ventricularization

UNIT III

Treadmill exercise stress testing and 24 hour ambulatory ECG (holter) recording

Lead systems , Cardiac arrhythmias and conduction disturbances during stress testing, Emergencies in the stress testing laboratory , Holter Analysis, Guidelines for ambulatory electrocardiography, Pressure gradient recording , Cardiac output determination Thermo dilution method. Oxygen dilution method, Principles of oximetry , Coronary angiography, Coronary angiographic catheters.

PRACTICAL:

1. Demonstration of Doppler echocardiography
2. Demonstration of Coronary angiography

SEMESTER-VI

PAPER CODE: NHCS-RDS-6036

QUALITY IN HEALTH CARE - HOSPITAL ACCREDITATION

PAPER CREDIT: 06 (4T+2P)

T: Theory P: Practical

Total no. of Lectures: 60+30(L+P) Total Marks: 100 (T60+IA20+P20)

L: Lecture, T: Tutorial, P: Practical T: Theory, IA: Internal Assessment, P: Practical

OBJECTIVES:

To learn about hospital accreditation, medical ethics, etc.

LEARNING OUTCOME:

In this paper the students will learn about hospital accreditation, medical ethics, etc.

CONTENTS

THEORY

UNIT I

Hospital accreditation: History of hospital accreditation in India, Background

UNIT II

NABH (National Accreditation Board for Hospitals & Healthcare Providers)

Schemes,ISO certification

UNIT III

Medical ethics and Standards: Access, Assessment and Continuity of Care,Care of Patients (COP),Management of Medication (MOM),Patient Rights and Education (PRE),Hospital Infection Control (HIC),Continual Quality Improvement (CQI),Responsibilities of Management (ROM),Facility Management and Safety (FMS),Human Resource Management (HRM),Information Management System (IMS).

PRACTICAL/PROJECT WORK:

1. Case study of hospital accreditation and medical ethics
2. Submission of report