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Program and Courses Specifications of MD Pediatrics (Hepatology)

*Department of Pediatrics Hepatology
National institute of Liver Menoufia University*

Course specification OF Pediatrics Hepatology

A -Administrative Information

Course Title : Pediatrics Hepatology

Department giving the course: Department of Pediatrics Hepatology

Program on which the course is given: MD. Of Pediatrics Hepatology

Department offering the program: Department of Pediatrics
Hepatology

Semester: 2nd

Coordinator: Dr-El-Behary EL saied EL Behery

**Date of most recent approval of program specification by the
institute council:** 2011

B-Professional Information

1 – Overall aims of course:

1. To support acquisition of knowledge and understanding of pediatric health and its promotion, and of pediatric hepatobiliary disease prevention and management, in the context of
The whole individual and his or her place in the family and society.
- 2-This course will enable the postgraduate student to:
 - be able to provide basic health care for individuals in different Pediatric age groups (neonates, infants, children, and adolescents).
 - Know the normal growth and development (physical, physiologic Psychosocial), and its clinical application from birth through adolescence.
 - Deal with the different clinical symptoms in order to reach a proper diagnosis.
 - Know appropriate background covering the common and important Pediatric hepatobiliary emergencies and diseases.
 - Identify the proper cost-effective needed investigations on facing a medical hepatobiliary problem in the pediatric age group.
 - having the ability of interpretation of most common investigations.

- Maintain and improve his standard pediatric Hepatology medical knowledge

Perceive & integrate progress in Pediatric medical knowledge & research.

- Identify the indications & logistics for referring pediatric Hepatology patients to other specialties.
- Learn how to learn pediatrics on evidence based manner.
- Know the magnitude of pediatric problems in the community especially endemic diseases such as (Bilharzias).
- Open a channel of communication with national & international medical schools.
- Enable the development and application of appropriate professional attitudes, communication and problem solving skills.
- Know the basic guidelines of preparing a thesis in medical research.

2-Intended Learning Outcomes:

a-Knowledge and Understanding:

By the end of the pediatric course, the M.D student will be able to:

A1- Describe normal growth and development during infancy, childhood and adolescence.

A2- Describe appropriate management for abnormalities affecting growth and development.

A3- Determine the nutritional requirements and the most common nutritional disorders affecting infants and children, and describe appropriate management for disorders.

A4- Describe the indications, contraindications, administration and precautions of the immunizations necessary for infants and children according to the national schedule and The condition of the child.

A5- Describe appropriate measures for health promotion as well as prevention of hepatological disease.

A6- Cite the management priorities for different neonatal and Pediatric hepatobiliary emergencies.

A7- Describe the causes and pathogenesis of the most important neonatal and pediatric hepatobiliary problems.

A8- Identify causes and pathogenesis of the most important neonatal and Pediatric and therapeutic lines for the most important neonatal and Pediatric hepatobiliary problems.

- A9. Identify the appropriate diagnostic tools (and describe how they would be interpreted) and therapeutic lines for the most important neonatal and Pediatric hepatological problems.
- A 10- Identify a clear priority plan in the patient's management.
- A11 -Identify the indications for consulting higher levels or reference to other disciplines
- A12- Apply the ethical and scientific principles of medical research Methodology.
- A13- Mention the ethical and medico legal principles that should be applied in the practice and are relevant to the field of Pediatric hepatology
- A14- Appraise the principles of quality assurance in medical practice.
- A15- Predict the effect of medical practice on surrounding environment and how can it be made safe (syringe disposal, tissue and blood specimen transport", ect)

b- Intellectual skills:

By the end of the pediatric hepatological course, the M.D student will be able to:

- B1- Interpret the most important symptoms and signs of hepatobiliary disease in Pediatric patients
- B2- Formulate appropriate management plans for individual patients presenting hepatobiliary Pediatric disorders.
- B3- Make decisions regarding common clinical situations using appropriate problem solving skills.
- B4- Interpret X-ray, CT, MRI, ECG,EEG, blood gas ,Liver enzyme ,CBC and blood picture report covering the most important hepatobiliary Pediatric conditions.
- B5-interpret data to solve different hepatobiliary pediatric problems

c- Professional skills:

By the end of the course, students should be able to:

- C1- Check vital signs in neonates, infants, children and adolescents.
- C2- Assess physical and mental development in neonates, infants, children and adolescents according to standard milestones and recognize abnormalities.
- C3- Perform appropriate clinical and anthropometrics assessments for the nutritional status of infants and children.
- C4- Recognize different neonatal and Pediatric hepatobiliary emergencies.

C5- Construct a proper history for a patient in the Pediatric age group.

C6- Perform an adequate clinical examination for a patient in the Pediatric age group and identify deviations from normal.

C7- Use efficiently modern tools relevant to the specialty for patient management.

C8- Write competently and evaluate all forms of medical reports

d- General and transferable skills:

By the end of the pediatric course, the M.D student will be able to:

D1- Figure out strategies and plans using the available community resources.

D2- Use different models for assessing client needs, considering the children needs of
The society.

D3- Communicate effectively with children, adolescent and their families.

D4- Demonstrate appropriate professional attitudes and behaviors in different practice situations.

3- Contents:

§ Theoretical course:

I-General pediatrics

- Terminology

II- Vaccination

- Types
- Schedule
- Indications
- Contraindication
- Side effects

III-Growth and development

O Nutritional requirements.

O Normal patterns of growth and development, and factors affecting them.

O Normal developmental milestones.

O Abnormal patterns of growth and development, and causative factors.

O Instruments of anthropometric measurement and their application including body mass

Index (BMI), normal and abnormal.

O Tools of developmental evaluation in infancy, childhood, and adolescence.

IV-Nutrition and feeding

O Nutritional counseling of families regarding:

- Breastfeeding
- Complementary feeding

O Appropriate balance of food groups qualitatively and quantitatively in the diet.

O Basic vitamin groups and their common dietary sources.

O Dietetic history that includes the types, amount, and frequency of milk feeds, solid

Foods and dietary supplements.

O Infant weaning.

O Protein energy malnutrition syndromes.

O Obesity.

O Common vitamins and mineral deficiencies.

O Nutritional risk factors for cardiac disease and diabetes.

O Nutritional assessment in children beyond infancy in situations when growth is

Inadequate or excessive or when family risk

O Factors suggest the possibility that nutritional modification will be needed.

V- Perinatology and Neonatology

O Obstetrical and neonatal risk factors.

o Care of the normal newborn.

o Neonatal resuscitation.

O Growth patterns and nutrition of the newborn.

O Neonatal mortality.

o Common neonatal problems.

Prematurity and low birth weight.

Birth injuries.

Respiratory tract disorders.

Digestive tract disorders.

Genitourinary system disorders.

Endocrine system disorders.

Umbilicus .

Dymorphology .

Hyper-bilirubinemia.

Sepsis.

Neurological disorders.

Cardiovascular disorders.

Hematological disorders.

Metabolic disorders.

Surgical emergencies.

VI- Genetics and Dymorphology

- Molecular basis of genetic disorders.
- Molecular diagnosis of genetic diseases.
- Patterns of inheritance.
- Chromosomal clinical abnormalities.
- Gene therapy.
- Genetic counseling.

VII-Cardiology course:

- O Hemodynamic of the normal heart.
- O Congenital heart diseases.
- O Rheumatic fever and rheumatic heart disease.
- O Infective endocarditic
- O Diseases of myocardium and pericardium.
- O Hypertension
 - o Cor pulmonale
 - o Cardiac arrhythmias.
 - o Heart Failure
 - o Basic mechanisms of heart failure and the principles of its management in the pediatric patient.
 - o Cardiomyopathy
 - o Cardiovascular drugs
 - o Indications, and hazards of various types of cardiovascular investigations.

VIII-Diseases of respiratory system:

- O Congenital anomalies of respiratory tract .
 - o Rhinitis, pharyngitis, tonsillitis, adenoiditis, sinusitis and otitis media.
 - o Laryngitis, epiglottitis, and tracheitis.
 - o Bronchitis, bronchiolitis, and bronchiectasis.
 - o Wheezy chest and bronchial asthma.
 - o Pleural effusion, pneumothorax, emphysema .
- O foreign body inhalation.
- O Obstructive airway diseases
- O Respiratory infections and Pneumonias
- O Supportive Lung syndromes
- O Tuberculosis
- O Interstitial lung diseases
- O Respiratory failure
- O Occupational lung diseases
- O Meditational Syndrome
- O Disorders of the chest wall and pleura
- O Lung Cysts
- O Cystic fibrosis.
- o Inherited disorders of surfactant deficiency .

IX-Neurology course:

- O Congenital anomalies of CNS .
- O Seizures and conditions mimic seizures .
 - o Anticonvulsant drugs.
- O Headache.
- O Encephalopathies.
 - o Floppy infants.
 - o Mental retardation.
 - o Cerebral palsy.
 - o Hereditary myopathies (muscle dystrophy).
 - o Cerebrovascular accidents and stroke
 - o Hemiplegia
 - o Paraplegia
 - o Peripheral Neuropathies
 - o Movement disorders .
 - o Extra pyramidal syndromes
 - o Neurologic bladder disorders
 - o Speech abnormalities
 - o Space occupying lesions
 - o Diseases of muscles and Neuro-muscular Junction .
 - o Meningitis and encephalitis
 - o Neurodegenerative disorders
 - o Neurocutaneous syndrome.

X-Endocrinology & metabolism:

- O Disorders of hypothalamus and pituitary gland ,
- O Disorders of puberty .
- O Disorders of thyroid and parathyroid gland ,
 - o Disorders of the adrenal gland
 - o Gonadal disorders .
 - o Intersex and ambiguous genitalia
 - o Short stature.
 - o Stunted growth
 - o Obesity
 - o Diabetes mellitus.
 - o Hypoglycemia
 - o Inborn errors of protein,CHO,lipids,purine and pyrimidine metabolism.
- O Mucopolysaccharidosis .
- O Progeria .
- O porphyries.

XI-Hematology and oncology

- o Normal hematopoiesis.
- o Normal hemostasis.
- o Anemias

- o Polycythemia .
- o pancytopenia .
- o Bleeding and coagulation disorders.
- o Common pediatric malignancies.
- o Platelet disorders
- o Leucocytes disorders
- o Lymphadenopathy
- o Leukemias
- o Lymphoma
- o Neuroblastoma
- o Solid tumors
- o Renal tumors
- o Myeloproliferative disorders
- o Anticoagulants
- o Blood component transfusions
- o Thrombotic disorders
- o Bone marrow transplantation

XII-Rheumatology:

- § Evaluation and treatment of suspected rheumatic diseases .
- § Arthropathies
- § Juvenile rheumatoid arthritis
- § Systemic lupus erythematosus
- § Seronegative arthropathies
- § Musculoskeletal pain .
- § Familial mediterenean fever .
- § Osteoarthritis
- § Osteoporosis
- § Scleroderma and related conditions
- § Vasculitis syndromes .
- § Amyloidosis and sarcoidosis .

XIII-Gastroenterology & Hepatology:

- O Major signs and symptoms of digestive tract disorders .
- o GE, chronic and persistent diarrhea.
- o Dehydration.
- o Vomiting.
- o Recurrent abdominal pain.
- O Food allergy .
- o Disorders of the esophagus and gastroesophageal junction
- o Peptic ulcer
- o Gastro-intestinal Malignancies
- o Functional colonic disorders
- o Inflammatory bowel disease
- o Malabsorption syndrome

- o Disorders of GI motility
- o Disorders of the pancreas
- o Metabolic diseases of liver .
- o Cholestasis .
- o liver abscess .
- o Hepatomegaly/splenomegaly.
- o Jaundice.
- o Acute hepatitis
- o Chronic hepatitis
- o Liver cirrhosis
- o Steatosis
- o Portal hypertension
- o Upper GIT bleeding
- o Ascites and peritoneal disease
- o Hepatocellular Failure
- o Liver transplantation
- o GALL bladder disease
- o Focal hepatic lesions
- o Cystic disease of liver and biliary tract .

IVX-- Infectious diseases and immune system disorders :

- Gram – positive bacterial infections .
- Gram – negative bacterial infections .
- anaerobic bacterial infections.
- Mycobacterial infections .
- Spirochetal infections.
- Mycoplasma infection.
- Chlamydial infections.
- Rickettsial infections.
- Mycotic infections.
- Viral infections.
- Protozoal infections.
- Helminthic infections.
- Preventive Measures.
- Fever of unknown etiology.
- Evaluation of immune system.
- Immuno-deficiency disorders
- Antibiotics strategies.

XV-Nephrology course:

- o Common symptoms of renal and urinary tract disorders.
- o Developmental renal and urinary tract disorders.
- o Investigations of renal disease
- o Proteinuria and conditions associated with it .
- o Hematuria and conditions associated with it .

- o Tubular disorders .
- o Urinary tract infections and pyelonephritis
- o Urinary tract obstruction
- o Acute renal Failure
- o Chronic renal failure
- o Hemodialysis
- o Peritoneal dialysis
- o Renal Transplantation
- o Drugs and the kidney
- o Diuretics
- o Kidney in systemic diseases
- o Urinary lithiasis .
- o Water ,electrolyte and acid base balances

XVI-Psychiatric course:

- Vegetative disorders .
- Habit disorders .
- Anxiety disorders .
- Suicide .
- Pervasive developmental disorders .
- Attention deficit hyperactivity disorders.
- Mood disorders
- Sexual dysfunction not caused by organic disorder or disease
- Main groups of Psychotropic medications

XVII-Pediatric Hepatobiliary Emergencies ;

- CPR.
- Shock.
- Seizures.
- Coma.
- Airway obstruction.
- RD/Apnea.
- Metabolic emergency.
- Hepatic coma
- Biliary obstruction
- Fulminant Hepatitis
- Drowning and near drowning.

XVIII- Social and Behavioral pediatrics

- o Genetic and environmental influences on behavior.
- o Age-appropriate behavioral concerns during the health care supervision visit.
- o Counseling the parents and children on management of common behavioral such as discipline, toilet training (enuresis, encopresis) and eating disorders.

XIX Disorders of Eye:

- Disorders of vision.
- Abnormalities of pupil and iris.
- Eye movement disorders.
- Abnormalities of lids and lacrimal system.
- Disorders of cornea, conjunctiva, lens retina and optic nerve .
- Childhood glaucoma.

XX Disorders of Ear:

- Hearing loss.
- Congenital malformation.
- Otitis media.
- Diseases of external and inner ear.

XXI Skin :

- Diseases of neonates.
- Cutaneous defects.
- Ectodermal Dysplasia.
- Vascular Disorders.
- Cutaneous Nevi
- Hyper and Hypo pigmented lesions.
- Eczematous Disorders.
- Photosensitivity.
- Infections of skin.
- Nutritional Dermatitis .
- Disorders of hair,nail,sweat glands,and keratinizayion

XXII Bone and Joint Disorders:

- Evaluation of orthopedic problems.
- Arthrogyrosis.
- Common fractures.
- Osteomyelitis and Suppurative Arthritis.
- Sportss Medicine.
- Skeletal Dysplasias.
- Metabolic Bone diseases.

XXIII Environmental Health Hazards:

- Pediatric radiation injury.
- Chemical pollutants.
- Heavy metal intoxication.
- Poisonings.

XXIV Preventive Pediatrics

- Clinical training course:

History taking

General Examination

Striking features

Conscious level
Position in bed
Body built
Vital signs
Anthropometric measurements
Pallor
Jaundice
Cyanosis
Oedema
Lymph nodes examination
Skin examination
Joint examination
Limbs examination
Gait
Speech
Head and neck examination
Different systems examination

- **Clinical Cases:**

1. NUTRITION

- o PEM.
- O Different types of Rickets.
- O Vitamin deficiency and excess
- O Mineral deficiency and excess

2. GENETIC

- o Chromosomal abnormalities .
- o Single gene disorders
- o Mental retardation.
- O Inborn errors of metabolism
- O Syndromic disorders

3. NEONATOLOGY

- o Neonatal resuscitation.
- o Growth patterns and nutrition of the newborn.
- o Assessment of gestational age
- o Prematurity and low birth weight.
- o Birth injuries.
- o Respiratory tract disorders.
- o Digestive tract disorders.
- o Genitourinary system disorders.
- o Endocrine system disorders.
- o Umbilicus .
- o Dysmorphology .
- o Hyper-bilirubinemia.
- o Sepsis.

- o Neurological disorders.
- o Cardiovascular disorders.
- o Hematological disorders.
- o Metabolic disorders.
- o Surgical emergencies (NEC)

4. RESPIRATORY

- o Congenital anomalies of respiratory tract .
- o Rhinitis, pharyngitis, tonsillitis, adenoiditis, sinusitis and otitis media.
- o Laryngitis, epiglottitis, and tracheitis.
- o Bronchitis, bronchiolitis, and bronchiectasis.
- o Wheezy chest and bronchial asthma.
- o Pleural effusion, pneumothorax, emphysema .
- o Foreign body inhalation.
- o Obstructive airway diseases
- o Respiratory infections and Pneumonias
- o Suppurative Lung syndromes
- o Tuberculosis
- o Interstitial lung diseases
- o Respiratory failure
- o Occupational lung diseases
- o Mediastinal Syndrome
- o Disorders of the chest wall and pleura
- o Lung Cysts
- o Cystic fibrosis .
- o Inherited disorders of surfactant deficiency

5. CARDIOVASCULAR & RHEUMATOLOGY

- o Congenital heart diseases .
- o Rheumatic fever and rheumatic heart disease.
- o Infective endocarditis
- o Diseases of myocardium and pericardium .
- o Hypertension
- o Cor pulmonale
- o Cardiac arrhythmias.
- o Heart Failure
- o Cardiomyopathy

6. NEUROLOGY

- o Congenital anomalies of CNS .
- o Seizures and conditions mimic seizures
- o Encephalopathies .
- o Floppy infants.
- o Mental retardation.
- o Cerebral palsy.
- o Hereditary myopathies (muscle dystrophy).

- o Cerebrovascular accidents and stroke
- o Hemiplegia
- o Paraplegia
- o Peripheral Neuropathies
- o Movement disorders .
- o Extra pyramidal syndromes
- o Neurologic bladder disorders
- o Speech abnormalities
- o Space occupying lesions
- o Diseases of muscles and Neuro-muscular Junction .
- o Meningitis and encephalitis
- o Neurodegenerative disorders
- o Neurocutaneous syndrome.

7. NEPHROLOGY

- o Developmental renal and urinary tract disorders.
- o Proteinuria and conditions associated with it .
- o Hematuria and conditions associated with it .
- o Tubular disorders .
- o Urinary tract infections and pyelonephritis
- o Urinary tract obstruction
- o Acute renal Failure
- o Chronic renal failure
- o Kidney in systemic diseases
- o Urinary lithiasis .
- o Water ,electrolyte and acid base balances

8. GIT

- Gastroenteritis.
- Dehydration.
- Hepatosplenomegaly.
- Jaundice
- Cirrhosis
- Portal Hypertension
- Ascites and Peritoneal disease
- Hepatic Failure
- Gall bladder disease
- Malabsorption syndromes
- Focal hepatic lesions

9. HEMATOLOGY and oncology

- o Anaemias.
- o Bleeding disorders.

DIC

Thrombophilia

- o Leukemias .

Lymphomas
Solid tumors
Sarcomas
Neuroblastoma
Retinoblastoma
Renal tumors
CNS tumors
o Lymphadenopathy .

10. ENDOCRINOLOGY

- Disorders of hypothalamus and pituitary gland ,
- Disorders of puberty .
- Disorders of thyroid and parathyroid gland ,
- Disorders of the adrenal gland
- Gonadal disorders .
- Intersex and ambiguous genitalia
- Short stature.
- Stunted growth
- Obesity
- Diabetes mellitus.
- Hypoglycemia
- Inborn errors of protein,CHO,lipids,purine and pyrimidine metabolism.
- Mucopolysacchraidosi .
- Progeria .
- porphyria .

11. Rheumatology

- Rheumatoid arthritis
- Systemic lupus erythematosi
- Osteoarthritis
- Vasculiti
- Connective tissue disorders
- Allergy

B§ Practical training course:

Radiology

- Interpretation of conventional x-rays
- Ultrasonography
- CT scans
- MRI

Radio-isotope diagnostics

ECG

EEG

EMG

Interpretation of

- Urine and stool examination

- Liver function tests

Renal function tests

- CSF
- Blood picture
- Blood Film
- Serological tests

Blood transfusions

Water, electrolyte and acid base balance

Skills and maneuvers:

IV line

Central venous line

Umbilical catheterization

Endotracheal intubations

Nasogastric tube

Cardiopulmonary resuscitation

Exchange transfusion in neonate and children

Artificial ventilation

Hemodialysis

Peritoneal dialysis

Pediatric Gastro-intestinal endoscopy

Abdominal ultrasonography

Echo doppler

C&S Training on pediatric medical emergencies:

- Basic & advanced cardiac life support
- Acute renal failure
- Coma & disorders of consciousness
- Shock
- Systemic inflammatory response syndrome and multi-organ failure
- Acute poisoning
- Acute ischemic syndromes
- Arrhythmias
- Acute pulmonary edema
- Acute dyspnea
- Pneumothorax
- Pulmonary embolism
- Asthma
- Respiratory failure
- Stroke and metabolic encephalopathies
- Diabetic ketoacidosis and hypoglycemia
- Addison's disease
- Tetany and calcium Hemostasis
- Upper and lower Gastrointestinal bleeding
- Apnea

- Cardiorespiratory monitoring
- Haemostatic failure

Lectures: 18 hrs practical: 10 hrs total: 28 hrs

Topics	No. of hours for lectures	No. Of hours for practical / clinical	Total no. of hours
1- General pediatrics	7.5	-	7.5
2- Vaccination	7.5	-	7.5
3-Growth and development	15	15	30
4-Nutrition and feeding	15	15	30
5- Perinatology and Neonatology	15	15	30
6- Genetics and Dymorphology	15	15	30
7-Cardiology course:	15	30	45
8-Diseases of respiratory system:	15	30	45
9-Neurology course	15	15	30
10-Endocrinology & metabolism	15	15	30
11-Hematology and oncology	15	15	30
12-Rheumatology:	7.5	15	22.5
13-Gastroenterology & Hepatology	15	30	45
14- Infectious diseases and immune system disorders	15	15	30
15-Nephrology course:	15	15	30
16-Psychiatric course:	15	15	30
17-Pediatric Emergencies ;	15	15	30
18- Social and Behavioral pediatrics	7.5	-	7.5
19- Disorders of Eye:			22.5
20- Disorders of Ear:			22.5
21- Disorders skin	7.5	15	22.5
22- Bone and Joint Disorders:	7.5	15	
23- Environmental Health Hazards:	7.5	-	7.5
24- Preventive Pediatrics	7.5	-	7.5
Total	270	300	570

-4Teaching and learning methods

- 4.1- Lectures for knowledge and understanding
- 4.2- Practical sessions for physical signs detection
- 4.3- Tutorials for open case discussion
- 4.4- Clinical round for case presentations

4.5- Regular scientific seminars

4.6- Problem Based Learning

4.7- Assignments

5-Student assessment methods

5.1 Written Exam to assess (a1, a2, a3, a4, a5,a6, a7, a8, a9, a10,a11,a12,a13, b2 ,d1,d2,d3)

5.2 Clinical Cases Exam to assess (a8, a11,a12,a13, b1, b2, b3, c1, c2,c3, ,c4,c5,c6,c7, d4,e1,e2,e3)

5.3 Oral Exam to assess (a1, a2, a3, a4, a5,a6, a7, a8, a9, a10,a11,a12,a13, b2 ,d1,d2,d3)

5.4 Log Book to assess (a8, a11,a12,a13, b1, b2, b3, b4,b5,c1, c2,c3, ,c4,c5,c6,c7, d4)

Assessment schedule

Two written exams 3 hours each in Pediatrics + oral + practical exam

Weighting of assessments

Final written examination 40%

Oral examination 30%

Practical examination 30%

Total 100%

6-List of references

6.1- Course notes: Lectures notes.

6.2- Recommended books:

o Nelson Textbook of Pediatrics e-edition: Text with Continually Updated Online

Reference (Hardcover) by Richard E. Behrman ,Robert M. Kliegman, Hal B.

Jenson (Author)

o Nelson Essentials of Pediatrics, 5E with STUDENT CONSULT Access Fifth

Edition(Nelson Essentials of Pediatrics) by Robert

6.3- Periodicals and web sites of Pediatrics

o www.emedicine.com

o www.pubmed.com

o www.nejm.org

o www.bmj.com

7-Facilities required for teaching and learning

7.1- Overhead projectors

7.2- Computers and Data show

7.3- Recommended books

o For fare paediatrics

o Postgraduate haematology

o Manual of paediatric haematology and oncology

7.4- Periodicals, Web sites, etc

o www.emedicine.com

o www.pubmed.com

o www.nejm.org

o www.bmj.com

o www.northes.com

We certify that all of the information required to deliver this course is contained in the above specification and will be implemented

- Practical sessions for physical signs detection
- Tutorials for open case discussion
- Clinical round for case presentations
- Regular scientific seminars
- Assignment

Head of Quality Assurance Unit: Prof. Dr.wessam saber morad