|  |  |  |
| --- | --- | --- |
| **Course Title:** | Endocrine and Metabolism |  |
| **Course Code:** | 391 END -5 |  |
| **Program:** | Bachelor of Medicine and Bachelor of Surgery (MBBS) |  |
| **Department:** | N/A |  |
| **College:** | College of Medicine |  |
| **Institution:** | Najran University |  |

# Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:** | | | | **5 (4+1)** | | | | | | | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | | | |
| **a.** | University | |  | | College | | |  | Department | | | |  | Others (Program) | **√** |  |
| **b.** | | Required | | | | **√** | Elective | | |  |  | | | | | |
| **3. Level/year at which this course is offered:** | | | | | | | | | | | | **9 th level/3rd year** | | | | |
| **4. Pre-requisites for this course** (if any)**: Phase 1 blocks are prerequisites for Phase 2** | | | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**: None** | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |

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## 6. Mode of Instruction (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | 79 | 52.1 |
| **2** | **Blended** |  |  |
| **3** | **E-learning** |  |  |
| **4** | **Distance learning** |  |  |
| **5** | **Other** | 34 | 47.9 |

**7. Contact Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Contact Hours** |
| **1** | **Lecture** | 45 |
| **2** | **TBL/BPL** | 22 |
| **4** | **SDL** | 12 |
| **5** | **Laboratory/Studio** | 22 |
| **6** | **BST** | 12 |
|  | **Total** | 113 |

# B. Course Objectives

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| 1. Course Description This course is intended to give the student a knowledge about the basic biochemical reactions  and metabolism, the structure and function of endocrine system and the abnormalities related  to it. |
|  |
| 2. Course Main Objective 1) Acquire sound knowledge of Endocrine System structure and function.  2) Describe the major metabolic pathways and their inter-relationships.  3) Describe the symptoms and signs of some common diseases, injuries and disturbances  of this system and their prevention.  4) Develop a problem solving approach to Endocrine and metabolic disorders.  5) Explain the pathogenesis of various Endocrine and or metabolic diseases categories and  their presentation, investigations (laboratory, radiological, etc), and management.  6) Discuss the regulatory mechanism that regulates the different pathways of carbohydrates,  lipids, protein and nucleic acid and their management. |
|  |

# Course Content

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** | | |
|  | Introduction (Block coordinator) | | 1 |
|  | PBL session (Discussion) | | 2 |
|  | Introduction to endocrine glands and Role of the hypothalamus (Phys) | | 1 |
|  | Gross anatomy of endocrine glands 1 (thyroid & suprarenal) (Anatomy)(DR) | | 2 |
|  | Anatomy of pituitary and thyroid glands (Anat) | | 1 |
|  | Gross anatomy of endocrine glands 2 (DR) | | 2 |
|  | Histology of endocrine system SDL | | 3 |
|  | Histology of pituitary. & thyroid glands (Anat) | | 1 |
|  | Histology of parathyroid & suprarenal glands (Anat) | | 1 |
|  | Histology of endocrine parts of pancreas, ovary & testes (Anat) | | 1 |
|  | Histology of endocrine glands (Anatomy) (Lab) | | 2 |
|  | Development & congenital anomalies of thyroid & parathyroid glands (Anat) | | 1 |
|  | Development & congenital anomalies of Pituitary & suprarenal glands (Anat) | | 1 |
|  | Ant. Pituitary hormones (Phys) | | 1 |
|  | Post. Pituitary hormones (Phys) | | 1 |
|  | Pituitary gland SDL | | 3 |
|  | Pituitary Pathology (Path) | | 1 |
|  | Respiratory chain (Bio) | | 1 |
|  | Citric acid cycle (Bio) | | 1 |
|  | PBL session (Outcome) | | 2 |
|  | Hypothalamic& ant. pituitary hormones (Pharm) | | 1 |
|  | PBL session (Discussion) | | 2 |
|  | TBL- Thyroid disorders (Medicine) | | 2 |
|  | (Posterior pituitary hormones (pharma | | 1 |
|  | Pituitary pathology (path) | | 1 |
|  | Glycolysis (Bio) | | 1 |
|  | Thyroid hormones (Phys) | | 1 |
|  | Thyroid hormones (Path) | | 1 |
|  | Parathyroid Hormones & calcium homeostasis(Phys) | | 1 |
|  | HMP shunt(Bio) | | 1 |
|  | Adrenal gland 1 (Phys) | | 1 |
|  | Thyroid and antithyroid drugs 1 and 2 (Pharm) 2 | | 1 |
|  | Glycogen metabolism (Bio) | | 1 |
|  | Adrenal gland 2 (Phys) | | 1 |
|  | Galactose& fructose metabolism(Bio) | | 1 |
|  | Pathology of the adrenal gland(Path) | | 1 |
|  | Adrenocorticosteroids and their antagonists 1 and 2 (Pharm) | | 1 |
|  | Gluconeogenesis (Bio) | | 1 |
|  | Beta oxidation of fatty acids (Bio) Practical | | 2 |
|  | PBL session (Outcome) | | 2 |
|  | Fatty acid synthesis (bio) | | 1 |
|  | PBL session (Discussion) | | 2 |
|  | TBL - Adrenal disorders ( Physiology) 2 | | 2 |
|  | Metabolism of Ketone bodies (Bio) | | 1 |
|  | Pancreatic hormones (Phys) | | 1 |
|  | Endocrine versus exocrine in Pancreas SDL | | 3 |
|  | Pathology of the Pancreas (Path) | | 1 |
|  | Phospholipid triglyceride metabolism(Bio) 1 | | 1 |
|  | Metabolism of cholesterol & Lipoprotein 1 (Bio) | | 1 |
|  | Metabolism of cholesterol & Lipoprotein 2 (Bio) | | 1 |
|  | Practical lab 1(Bio) | | 2 |
|  | Practical lab 2 (Bio) | | 2 |
|  | Thyroid gland surgery (Surg) | | 1 |
|  | Glucose Homeostasis (Phys) Practical | | 2 |
|  | Urea cycle (Bio) | | 1 |
|  | Aminoacid catabolism (Bio) Practical | | 2 |
|  | Pancreatic hormones and antidiabetic 1(pharma) | | 1 |
|  | Pancreatic hormones and antidiabetic 2(Pharm) | | 1 |
|  | PBL session (Outcome) | | 2 |
|  | Normal Findings on CT and X-ray (Radio) | | 1 |
|  | Abnormal Findings on CT and X-ray (Radio) | | 1 |
|  | PBL session (Discussion) | | 2 |
|  | TBL- Diabetes Mellitus (Medicine) | | 2 |
|  | Integration of metabolism (Bio) Practical | | 2 |
|  | Endocrine pathology 1 Practical (Path) | | 2 |
|  | Endocrine pathology 2 Practical (Path) | | 2 |
|  | BST (Surg) | | 3 |
|  | Conversion of amino acids to specialized products (Bio) Practical | | 2 |
|  | Miscellaneous hormones (Phys) | | 1 |
|  | BST (Med) | | 3 |
|  | PBL session (Outcome) | | 2 |
|  | Endocrine disorders during pregnancy 1 (Obst.) | | 1 |
|  | Endocrine disorders during pregnancy 2 SDL (Obst.) | | 3 |
|  | BST (obs) | | 3 |
|  | Metabolic rate (Pedia) | | 1 |
|  | BST (Pedia) | | 3 |
| **Total contact hours** | | 113 | | |

# Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | Mid block exam (MCQs, SAQs) | 3rd week | 20% |
| **2** | PBL sessions | First 4 weeks | 10% |
| **3** | TBL sessions | 2nd, 3rd,  4th week | 10% |
| **4** | End of theory course exam MCQs | 5th week | 40% |
| **5** | End of OSPE/OSCE exam 5th week | 5th week | 20% |

**\*Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

# F. Learning Resources and Facilities

## 1.Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | 1. List Required Textbooks  2. Clinical anatomy by systems 13th edition 2006. Richard S  Snell. Lippincott Wilkins and Williams. ISBN –  978078179164-9  3. Junqueira: Basic Histology 4th ed.  4. Text and atlas 2016 Antony L Mescher McGraw-Hill  Companies Inc. ISBN-978-0-7-184270-9  5. Langman medical embryology 13th edition 2015. TW Saddler  Wolters Kluwar Health ISBN- 978-1-4698-9780-6  6. Ganong review of medical physiology  7. Basic & Clinical Pharmacology by B.G. Katzung.  8. Lippincott's biochemistry.  9. Bailey &love’s: short practice of surgery.  10. Davidson’s principles and practice of medicine.  11. Robbins and Cotran pathological basis of disease. Kumar et al.  9th edition 2015 |
| **Essential References Materials** | 1. Gray’s Anatomy for Medical Students 3rd ed2004. R Drake, A  Wayne Vogl, Adam W Mitchell. Churchill Livingstone ISBN-  978070251319  2. Essential clinical anatomy 5th edition 2006 RL Moore, Arthur  F Dalley, Lippincotts Williams and Walkins ISBN- 0-7817-  3639-0.  3. The developing human: clinically oriented anatomy 13th  edition 2015. R Moore, T V Perseud, Mark Terchia. Saunders.  ISBN:9780323313384.  4. Harper illustrated biochemistry –28th edition-2009 by Mc  Graw Hill ISSN 1043-9811  5. Bailey and Scott’s Diagnostic microbiology. Latest edition.  6. Harrison's textbook of Medicine, 17th Edition.  7. Nelson Essentials of Pediatrics Author: Karen Marcdante MD  Robert M. Kliegman MDISBN: ISBN- 13: 978-1455759804 ISBN-10:  1455759805Publishing Year: 7th Edition; 2014  8. Muir’s Textbook of pathology  9. Rang and dales pharmacology  10. Essentials of medical pharmacology by KD tripathi  11. Guyton Textbook of medical physiology |
| **Electronic Materials** | 1. Saudi Digital Library   <https://sdl.edu.sa/sdlportal/en/publishers.aspx>  2. [WWW.WHO.org](http://WWW.WHO.org) ( <https://www.who.int/>)  3. [WWW.CDC.org](http://WWW.CDC.org);   1. <http://www.adameducation.com/interactive-physiology> 2. http://www.webpath.med.utah.edu   6. [WWW.ASM.org](http://WWW.ASM.org);  7- [WWW.BSAC.org](http://WWW.BSAC.org);  8- [WWW.clsi.org](http://WWW.clsi.org)  9- [WWW.microbelibrary.org](http://WWW.microbelibrary.org)  10- [WWW.pubmed.gov](http://WWW.pubmed.gov)  11- <http://www.uptodate.com/home/index.html>  12- <http://www.jpeds.com>  13- <http://pediatrics.aappublications.org>  14- [www.pathmax.com](http://www.pathmax.com)  15- [www.webpath.com](http://www.webpath.com) |
| **Other Learning Materials** | 1. Ganong’s Review of Medical Physiology, Kim E. Barrett et al, 25th edition, 2016. 2. Grant’s Atlas of Anatomy, Anne M.R.Agur, Arthur F. Dalley, 13th edition 2013 3. Merkell and Voge’s Medical Parasitology, David T. John et al, 9th edition.2006. 4. Wheater’s basic histopathology 5. Di Fiore’s atlas of histology 6. Diagnostic molecular pathology, William B. Coleman & Gregory J. Tsongalis |

## Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | 1) Lecture room suitable for 40 students.  2) Laboratory (dissection room-DR, physiology,  biochemistry, microbiology, pathology, pharmacology  and clinical skills) suitable for 40 students.  3) Teaching hospital for bedside teaching.  4) PBL rooms and laboratories |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | (AV, data show, Smart Board, software, etc.) Computers, multimedia in lecture room, |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | Library supplied with reference text books, electronic  resources |

# F. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** |  |
| **Reference No.** |  |
| **Date** |  |