

Guidelines
for
Competency Based Training Programme
in
DNB- Endocrinology



NATIONAL BOARD OF EXAMINATIONS

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AIM

The aim of the course is to develop human resources and personnel in the field of Endocrinology who shall

1. Provide the health care to the patients needing endocrine care
2. Introduce trainees to the principles of clinical research, and prepare them to analyze data, write investigative protocols and collect data in a scientific, organized manner.
3. Teach and train future undergraduate and postgraduate medical students and junior doctors in Endocrinology in Medical Colleges, Institutions and other Hospitals.
4. Acquire a spirit of scientific enquiry and carry out and guide research to improve the practice of the art and science of Endocrinology
5. Have management capabilities to make health care more cost-effective.
6. Recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
7. Be aware of the contemporary advances and developments in the field of Endocrinology.
8. Provide a comprehensive knowledge base to prepare the trainee to care for patients suffering from endocrine and metabolic diseases.
9. To ensure exposure to a wide variety of patients suffering from diverse endocrine problems to give the candidate experience in diagnosing and treating patients suffering from disease in all areas of endocrinology.
10. Provide a diverse experience through rotations in areas related to diagnostic procedures and imaging modalities used in endocrinology.
11. Prepare the trainee in the art of interacting with patients, patient education and counselling.
12. Prepare the trainee to continue his/her education throughout his/her life by giving him/her training in critically reading the medical literature, understanding medical informatics, medical economics, medical research methods, medical statistics, clinical decision-making, outcome assessment, health promotion, practice management and medico-legal issues.

PROGRAMME GOAL

The goal of postgraduate medical education shall be to produce specialists of Endocrinology who shall have the following competencies

- To diagnose endocrine diseases based on clinical methods.
- To interpret relevant laboratory and radiological investigations for the purpose of diagnosis
- To arrive at a treatment plan/s and discuss the pros and cons with the patient and his family.
- To keep abreast of the current knowledge and recent advances in the field by self learning and /or participating in continuing Medical Education programmes.
- To deliver preventive and rehabilitative care.
- To organize and manage administrative responsibilities for routine day to day work as well as emergent /urgent situations

PROGRAMME OBJECTIVES

By the end of training, trainees should have the requisite knowledge of, skills in, and attitudes towards the situations listed in order to manage:

- Newly presenting disease in the outpatient and inpatient hospital settings in a way that restores health and well-being efficiently and effectively.
- The long term care of patients in a way that minimises the impact on health and optimises long-term disease outcomes.
- Risk factors for a poor outcome, for example: hypertension, smoking, obesity, and hyperlipidaemia.
- Emergencies and short-term loss of disease control in a hospital setting in order to minimise the period of hospital admission while making efficient use of resources.
- Disease pre-dating or newly arising in pregnancy in both the outpatient and inpatient settings to optimise maternal and foetal outcomes.
- Adolescent, adult and elderly inpatients and outpatients.
- Screening for, and the prevention and treatment of, complications to optimise intermediate and final health outcomes.
- The application of nationally accepted guidelines in their own practice.
- The whole patient' taking account of personal, social and cultural as well as biomedical factors.
- Social and professional implications such as restrictions on driving and certain types of employment or activity
- Clinical services at department, hospital, district and population level in a way that makes efficient and effective use of resources to optimise health outcomes

All the candidates will be involved in the direct care of the patients admitted to the endocrine services. This will include taking a complete history and performing a comprehensive examination.

Additionally residents will be required to attend outpatient endocrine clinics where consultants will be available for on spot consultations.

Training in nuclear medicine will be coordinated with the department of nuclear medicine.

The residents will be given training in principles of scanning of various endocrine organs and interpretation of data.

ELIGIBILITY CRITERIA FOR ADMISSIONS TO THE PROGRAMME

(A) DNB Endocrinology Course:

1. Any medical graduate with **MD/DNB in General Medicine or Paediatrics** qualification , who has qualified the **Entrance Examination** conducted by NBE and fulfill the eligibility criteria for admission to DNB **Super Specialty** courses at various NBE accredited Medical Colleges/ institutions/Hospitals in India is eligible to participate in the Centralized counseling for allocation of DNB Endocrinology seats purely on merit cum choice basis.
2. Admission to 3 years post DNB Endocrinology course is only through **Entrance Examination** conducted by NBE and Centralized Merit Based Counseling conducted by National Board of Examination as per prescribed guidelines.

Duration of Course : 3 Years

TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Case presentations & discussion- once a week
2. Seminar – Once a week
3. Journal club- Once a week
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- once a month
6. Clinical Audit-Once a Month
7. A poster and have one oral presentation at least once during their training period in a recognized conference.

The rounds should include bedside sessions, file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan of interesting and difficult cases in unit discussions.

The training program would focus on knowledge, skills and attitudes (behavior), all essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of the rehabilitative care, including methodology of research and teaching.

Theoretical: The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are considered necessary in view of an inadequate exposure to the subject in the undergraduate curriculum.

Symposia: Trainees would be required to present a minimum of 20 topics based on the curriculum in a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the trainees with the dates for presentation.

Clinical: The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.

Bedside: The trainee would work up cases, learn management of cases by discussion with faculty of the department.

Journal Clubs: This would be a weekly academic exercise. A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.

Research: The student would carry out the research project and write a thesis/ dissertation in accordance with NBE guidelines. He/ she would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.

SYLLABUS

Basic Sciences as related to Clinical Endocrinology:

- a. Hormone receptors / receptor biology
 - b. Genetics in Endocrinology
 - c. Molecular biology
 - d. Hormonal assays
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Section I: Hormones and Hormone Action

1. Principles of Endocrinology
2. The endocrine patient
3. Principles of Hormone Action
4. Genetics of Endocrinology and control of peptide hormone formation
5. Health Care Reform, Population Health, and the Endocrinologist
6. Laboratory Techniques for Recognition of Endocrine Disorders

Section II: Hypothalamus and Pituitary

7. Neuroendocrinology & Disorders of the Neurohypophysis
8. Pituitary Physiology and Diagnostic Evaluation
9. Pituitary Masses and Tumors
10. Posterior Pituitary Gland

Section III: Thyroid

11. Thyroid Physiology and Diagnostic Evaluation of Patients with Thyroid Disorders
12. Hyperthyroid Disorders
13. Hypothyroidism and Thyroiditis
14. Nontoxic Diffuse Goiter, Nodular Thyroid Disorders, and Thyroid Malignancies, Sick euthyroid syndrome

Section IV: Adrenal Cortex and Endocrine Hypertension

15. The Adrenal Cortex
16. Endocrine Hypertension

Section V: Reproduction

17. Physiology and Pathology of the Female Reproductive Axis
18. Hormonal Contraception and fertility control- current approaches and global aspects
19. Testicular Disorders and male reproductive tract
20. Sexual Dysfunction in Men and Women
 - Menstrual Disorders and Pelvic Pain
 - The Menopause Transition and Postmenopausal Hormone Therapy
 - Hirsutism and Virilization
 - Gynecologic Malignancies

Section VI: Endocrinology and the Life Span

- a. Endocrine changes in pregnancy
- b. Endocrinology of fetal development
- c. Normal and aberrant growth

d. Puberty, ontogeny, Neuroendocrinology, physiology disorders

Section VI A: Maternal-Fetal

- 21. Endocrine Changes in Pregnancy
- 22. Endocrinology of Fetal Development

Section VI B: Childhood

Growth and maturation

- 23. Pediatric Disorders of Sex Development
- 24. Normal and Aberrant Growth in Children
- 25. Physiology and Disorders of Puberty

Section VI C: Adult

- 26. Hormones and Athletic Performance
- 27. Endocrinology and Aging

Section VII: Mineral Metabolism

- 28. Hormones and Disorders of Mineral Metabolism
- 29. Osteoporosis and Bone Biology
- 30. Kidney Stones

Section VIII: Carbohydrates and Fat Metabolism

31. Neuroendocrine Control of Energy Stores

32. Obesity

33. Disorders of Lipid Metabolism

34. Gastrointestinal Hormones and Gut Endocrine Tumors

35. Hypoglycemia

36. Diabetes & related topics

- Classification of Diabetes and other categories of lactose intolerance
- Epidemiology of Type 1 and Type 2 Diabetes
- Physiology of pancreatic endocrine function
- Insulin gene expression and biosynthesis
- Normal Pancreatic B cell function & Mechanism of Insulin secretion
- Biosynthesis, secretion and actions of glucagon
- Incretin Physiology in Health and disease
- Mechanism of Insulin action
- Regulation of Carbohydrate and lipid metabolism
- Measuring B cell function and Insulin action in clinical practice
- Pathogenesis of Non alcoholic Fatty Liver disease
- Insulin resistance syndrome
- Pathogenesis of Type 2 Diabetes . Glucolipotoxicity
- Genetics of Type 2 Diabetes
- Monogenic disorders of B cell
- Immunopathogenesis of Type 1 diabetes
- Molecular Genetics of Type 1 diabetes
- Obesity ; Pathogenesis , Treatment including Bariatric surgery
- Prevention of Type 2 Diabetes
- Prevention of Type 1 Diabetes
- Medical Nutrition therapy in Diabetes
- Exercise in Diabetes

- Sulphonylureas Current concepts
- Metformin
- PPAR agonists
- Alpha glucosidase inhibitors
- Incretin analogues and DPP 4 inhibitors
- SGLT -2 inhibitors
- Other oral therapies in Type 2 Diabetes
- Proposed Treatment Algorithms for Type 2 Diabetes
- Insulin therapy : Conventional and Analogues
- Insulin Pumps
- Insulin Infusion (VRII)
- Pancreatic and Islet transplantation
- Hypoglycemia in Diabetes
- Spontaneous hypoglycemia in Adults and children
- Diabetes ketoacidosis and HHS
- Diabetes in Pregnancy
- Tools for Glcaemic control monitoring , HbA1c , Fructosamine , Glycated Albumin etc
- Pathogenesis of Macrovascular complications
- Pathogenesis of Microvascular complications
- Diabetic retinopathy
- Diabetic nephropathy
- Diabetic neuropathy
- Diabetic foot assessment and management
- Connective tissue disorders of Diabetes
- Sexual dysfunction in Diabetes
- Coronary artery diseases and Stroke in Diabetes
- Hypertension in Diabetes
- Clinical trials in Diabetes

Section IX: Polyendocrine and Neoplastic Disorders

37. Multiple Endocrine Neoplasia

38. The Immunoendocrinopathy Syndromes

39. Endocrinology of HIV/AIDS

40. The Long -Term Endocrine Sequelae of Multimodality Cancer Therapy

41. Neuroendocrine Gastrointestinal and Lung Tumors (Carcinoid Tumors) and the Carcinoid Syndrome, and Related Disorder

Section X: Pregnancy

42. Thyroid disorders

- Maternal hyperthyroidism
- Maternal hypothyroidism
- Post-partum thyroid dysfunction
- Thyroid cancer in pregnancy

43. Parathyroid disorders and calcium disorders in pregnancy

44. Pituitary disorders

- Prolactinoma in pregnancy including management
- Hypopituitarism in pregnancy

45. Adrenal disorders

- Addison's disease in pregnancy
- Congenital adrenal hyperplasia
- Pheochromocytoma

Other areas in which knowledge is to be acquired:

- Biostatistics, Research Methodology and Clinical Epidemiology
- Ethics
- Medico legal aspects relevant to the discipline
- Health Policy issues as may be applicable to the discipline

STRUCTURED TRAINING PROGRAMME

1 st Year

Out patient / Inpatient management

- Endocrine testing
- Patient education
- Assisting & managing emergencies
- Starting research activity & Biomedical Statistics
- Computer data entry
- Teaching Undergraduate

2 nd Year

In addition to patient management

- Patient counseling
- Endocrine testing
- Attending surgeries
- Radiology & pathology training
- Nuclear Medicine
- Laboratory methods
- Computer data entry
- Teaching Undergraduate (MBBS), diploma, Postgraduate (MD Medicine) and 1 st year DNB students

3 rd Year

Out patient / Inpatient management

- Patient counseling
- Finalization & submission of research projects
- Teaching and Guiding Undergraduate (MBBS), diploma, Postgraduate (MD /DNB Medicine) and 1 st year & 2 nd year DM students

TRAINING PROGRAMME:

Postings:

- General ward – 12 months

- Private ward – 10 months
- Interdepartmental /emergency unit consultations – 10 months

Interdepartmental posting (12 weeks)

- Biochemistry and laboratory -2 weeks

 - Reproductive Medicine Unit – 2 weeks
 - Pediatric Endocrinology (if separate unit available) or clinic – 3 weeks
 - Diabetic foot lab and Podiatry 1 week
 - Statistics – 1 week
 - Molecular biology- 1 week
 - Thyroid USG and other endocrine imaging 1 week
 - FNAC – 4 days (2 hours each day) 1 week
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Speciality Clinics:

a.	Diabetic Foot clinic	once a week	50 weeks
b.	Adult Young diabetes or Type 1 DM clinic	once a week	20 weeks
c.	Menopause clinic / GDM / Gynae Endocrine clinic	once a week	50 weeks
d.	Ophthalmology clinic (Retina)	once a week	4 weeks
e.	Metabolic bone clinic	once a week	8 weeks
f.	Thyroid clinic	once a week	8 weeks
g.	General Endocrine clinic	once a week	12 weeks

Multi-departmental meetings:

a.	Nuclear Medicine – Endocrine surgery - Endocrinology meeting	once a week	50 weeks
b.	Pathology - Endocrine surgery - Endocrinology meeting	once in 2 weeks	20 weeks
c.	Neurosurgery - Endocrinology meeting	once a week	50 weeks

THESIS PROTOCOL & THESIS

The candidates are required to submit a thesis at the end of three years of training as per the rules and regulations of NBE.

Guidelines for Submission of Thesis Protocol & Thesis by candidates

Research shall form an integral part of the education programme of all candidates registered for DNB degrees of NBE. The Basic aim of requiring the candidates to write a thesis protocol & thesis/dissertation is to familiarize him/her with research methodology. The members of the faculty guiding the thesis/dissertation work for the candidate shall ensure that the subject matter selected for the thesis/dissertation is **feasible, economical and original.**

Guidelines for Thesis Protocol

The protocol for a research proposal (including thesis) is a study plan, designed to describe the background, research question, aim and objectives, and detailed methodology of the study. In other words, the protocol is the 'operating manual' to refer to while conducting a particular study.

The candidate should refer to the NBE Guidelines for preparation and submission of Thesis Protocol before the writing phase commences. The minimum writing requirements are that the language should be clear, concise, precise and consistent without excessive adjectives or adverbs and long sentences. There should not be any redundancy in the presentation.

The development or preparation of the Thesis Protocol by the candidate will help her/him in understanding the ongoing activities in the proposed area of research. Further it helps in creating practical exposure to research and hence it bridges the connectivity between clinical practice and biomedical research. Such research exposure will be helpful in improving problem solving capacity, getting updated with ongoing research and implementing these findings in clinical practice.

Research Ethics: Ethical conduct during the conduct and publication of research is an essential requirement for all candidates and guides, with the primary responsibility of ensuring such conduct being on the thesis guide. Issues like Plagiarism, not maintaining the confidentiality of data, or any other distortion of the research process will be viewed seriously. The readers may refer to standard documents for the purpose.

The NBE reserves the right to check the submitted protocol for plagiarism, and will reject those having substantial duplication with published literature.

PROTOCOL REQUIREMENTS

1. All of the following will have to be entered in the online template. The thesis protocol should be restricted to the following word limits.

- Title : 120 characters (with spacing) page
- Synopsis [structured] : 250-300
- Introduction : 300-500
- Review of literature : 800-1000
- Aim and Objectives : Up to 200
- Material and Methods : 1200-1600
- 10-25 References [ICMJE style]

2. It is mandatory to have ethics committee approval before initiation of the research work. The researcher should submit an appropriate application to the ethics committee in the prescribed format of the ethics committee concerned.

Guidelines for Thesis

1. The proposed study must be approved by the institutional ethics committee and the protocol of thesis should have been approved by NBE.
2. The thesis should be restricted to the size of 80 pages (maximum). This includes the text, figures, references, annexures, and certificates etc. It should be printed on both sides of the paper; and every page has to be numbered. Do not leave any page blank. To achieve this, following points may be kept in view:
 - a. The thesis should be typed in 1.5 space using Times New Roman/Arial/Garamond size 12 font, 1" margins should be left on all four sides. Major sections viz., Introduction, Review of Literature, Aim & Objectives, Material and Methods, Results, Discussion, References, and Appendices should start from a new page. Study proforma (Case record form), informed consent form, and patient information sheet may be printed in single space.
 - b. Only contemporary and relevant literature may be reviewed. Restrict the introduction to 2 pages, Review of literature to 10-12 pages, and Discussion to 8-10 pages.
 - c. The techniques may not be described in detail unless any modification/innovations of the standard techniques are used and reference(s) may be given.
 - d. Illustrative material may be restricted. It should be printed on paper only. There is no need to paste photographs separately.

3. Since most of the difficulties faced by the residents relate to the work in clinical subject or clinically-oriented laboratory subjects, the following steps are suggested:
 - a. The number of cases should be such that adequate material, judged from the hospital attendance/records, will be available and the candidate will be able to collect case material within the period of data collection, i.e., around 6-12 months so that he/she is in a position to complete the work within the stipulated time.
 - b. The aim and objectives of the study should be well defined.
 - c. As far as possible, only clinical/laboratory data of investigations of patients or such other material easily accessible in the existing facilities should be used for the study.
 - d. Technical assistance, wherever necessary, may be provided by the department concerned. The resident of one specialty taking up some problem related to some other specialty should have some basic knowledge about the subject and he/she should be able to perform the investigations independently, wherever some specialized laboratory investigations are required a co-guide may be co-opted from the concerned investigative department, the quantum of laboratory work to be carried out by the candidate should be decided by the guide & co-guide by mutual consultation.
4. The clinical residents are not ordinarily expected to undertake experimental work or clinical work involving new techniques, not hitherto perfected OR the use of chemicals or radioisotopes not readily available. They should; however, be free to enlarge the scope of their studies or undertake experimental work on their own initiative but all such studies should be feasible within the existing facilities.
5. The DNB residents should be able to freely use the surgical pathology/autopsy data if it is restricted to diagnosis only, if however, detailed historic data are required the resident will have to study the cases himself with the help of the guide/co-guide. The same will apply in case of clinical data.
6. Statistical methods used for analysis should be described specifically for each objective, and name of the statistical program used mentioned.

General Layout of a DNB Thesis:

- **Title-** A good title should be brief, clear, and focus on the central theme of the topic; it should avoid abbreviations. The Title should effectively summarize the proposed research and should contain the PICO elements.
- **Introduction-** It should be focused on the research question and should be directly relevant to the objectives of your study.

- **Review of Literature** - The Review should include a description of the most relevant and recent studies published on the subject.
- **Aim and Objectives** - The 'Aim' refers to what would be broadly achieved by this study or how this study would address a bigger question / issue. The 'Objectives' of the research stem from the research question formulated and should at least include participants, intervention, evaluation, design.
- **Material and Methods-** This section should include the following 10 elements: Study setting (area), Study duration; Study design (descriptive, case-control, cohort, diagnostic accuracy, experimental (randomized/non-randomized)); Study sample (inclusion/exclusion criteria, method of selection), Intervention, if any, Data collection, Outcome measures (primary and secondary), Sample size, Data management and Statistical analysis, and Ethical issues (Ethical clearance, Informed consent, trial registration).
- **Results-** Results should be organized in readily identifiable sections having correct analysis of data and presented in appropriate charts, tables, graphs and diagram etc.
- **Discussion**—It should start by summarizing the results for primary and secondary objectives in text form (without giving data). This should be followed by a comparison of your results on the outcome variables (both primary and secondary) with those of earlier research studies.
- **Summary and Conclusion-** This should be a précis of the findings of the thesis, arranged in four paragraphs: (a) background and objectives; (b) methods; (c) results; and (d) conclusions. The conclusions should strictly pertain to the findings of the thesis and not outside its domain.
- **References-** Relevant References should be cited in the text of the protocol (in superscripts).
- **Appendices** -The tools used for data collection such as questionnaire, interview schedules, observation checklists, informed consent form (ICF), and participant information sheet (PIS) should be attached as appendices. Do not attach the master chart.

Thesis Protocol Submission to NBE

1. DNB candidates are required to submit their thesis protocol within 90 days of their joining DNB training.

2. Enclosures to be submitted along with protocol submission form:
 - a) Form for Thesis Protocol Submission properly filled.
 - b) Thesis Protocol duly signed.
 - c) Approval letter of institutional Ethical committee. (*Mandatory, non receivable of any one is liable for rejection*)

Thesis Submission to NBE

1. As per NBE norms, writing a thesis is essential for all DNB candidates towards partial fulfillment of eligibility for award of DNB degree.
2. DNB candidates are required to submit the thesis before the cut-off date which shall be 30th June of the same year for candidates appearing for their scheduled December final theory examination. Similarly, candidates who are appearing in their scheduled June DNB final examination shall be required to submit their thesis by 31st December of preceding year.
3. Candidates who fail to submit their thesis by the prescribed cutoff date shall NOT be allowed to appear in DNB final examination.
4. Fee to be submitted for assessment (In INR): 3500/-
5. Fee can be deposited ONLY through pay-in-slip/challan at any of the Indian bank branch across India. The challan can be downloaded from NBE website www.natboard.edu.in
6. Thesis should be bound and the front cover page should be printed in the standard format. A bound thesis should be accompanied with:
 - a. A Synopsis of thesis.
 - b. Form for submission of thesis, duly completed
 - c. NBE copy of challan (in original) towards payment of fee as may be applicable.
 - d. Soft copy of thesis in a CD duly labeled.
 - e. Copy of letter of registration with NBE.
7. A declaration of thesis work being bonafide in nature and done by the candidate himself/herself at the institute of DNB training need to be submitted bound with thesis. It must be signed by the candidate himself/herself, the thesis guide and head of the institution, failing which thesis shall not be considered.

The detailed guidelines and forms for submission of Thesis Protocol & Thesis are available at www.natboard.edu.in.thesis.php.

LOG BOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant.

This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The log book should show evidence that the before mentioned subjects were covered (with dates and the name of teacher(s)) The candidate will maintain the record of all academic activities undertaken by him/her in log book .

1. Personal profile of the candidate
2. Educational qualification/Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations
6. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
7. In the absence of production of log book, the result will not be declared.

Leave Rules

1. DNB Trainees are entitled to leave during the course of DNB training as per the Leave Rules prescribed by NBE.
2. A DNB candidate can avail a maximum of 20 days of leave in a year excluding regular duty off/ Gazetted holidays as per hospital/institute calendar/policy.
3. MATERNITYLEAVE:
 - a. A female candidate is permitted a maternity leave of 90 days once during the entire duration of DNB course.
 - b. The expected date of delivery (EDD) should fall within the duration of maternity leave.
 - c. Extension of maternity leave is permissible only for genuine medical reasons and after prior approval of NBE. The supporting medical documents have to be certified by the Head of the Institute/hospital where the candidate is undergoing DNB training. NBE reserves its rights to take a final decision in such matters.
 - d. The training of the candidate shall be extended accordingly in case of any extension of maternity leave being granted to the candidate.
 - e. Candidate shall be paid stipend during the period of maternity leave. No stipend shall be paid for the period of extension of leave.
4. Male DNB candidates are entitled for paternity leave of maximum of one week during the entire period of DNB training.
5. No kind of study leave is permissible to DNB candidates. However, candidates may be allowed an academic leave as under across the entire duration of training program to attend the conferences/CMEs/Academic programs/Examination purposes.

DNB COURSE	NO. OF ACADEMIC LEAVE
DNB 3 years Course (Broad & Super Specialty)	14 Days
DNB 2 years Course (Post Diploma)	10 Days
DNB Direct 6 years Course	28 days

6. Under normal circumstances leave of one year should not be carried forward to the next year. However, in exceptional cases such as prolonged illness the leave

across the DNB training program may be clubbed together with prior approval of NBE.

7. Any other leave which is beyond the above stated leave is not permissible and shall lead to extension/cancellation of DNB course.
8. Any extension of DNB training for more than 2 months beyond the scheduled completion date of training is permissible only under extra-ordinary circumstances with prior approval of NBE. Such extension is neither automatic nor shall be granted as a matter of routine. NBE shall consider such requests on merit provided the seat is not carried over and compromise with training of existing trainees in the Department.
9. Unauthorized absence from DNB training for more than 7 days may lead to cancellation of registration and discontinuation of the DNB training and rejoining shall not be permitted.

10. Medical Leave

- a. Leave on medical grounds is permissible only for genuine medical reasons and NBE should be informed by the concerned institute/hospital about the same immediately after the candidate proceeds on leave on medical grounds.
- b. The supporting medical documents have to be certified by the Head of the Institute/hospital where the candidate is undergoing DNB training and have to be sent to NBE.
- c. The medical treatment should be taken from the institute/ hospital where the candidate is undergoing DNB training. Any deviation from this shall be supported with valid grounds and documentation.
- d. In case of medical treatment being sought from some other institute/hospital, the medical documents have to be certified by the Head of the institute/hospital where the candidate is undergoing DNB training.
- e. NBE reserves its rights to verify the authenticity of the documents furnished by the candidate and the institute/hospital regarding Medical illness of the candidate and to take a final decision in such matters.

11.

- a. Total leave period which can be availed by DNB candidates is $120+28 = 148$ days for 6 years course, $60+14=74$ days for 3 years course and $40+10 = 50$ days for 2 years course. This includes all kinds of eligible leave including academic leave. Maternity / Paternity leave can be availed separately by eligible candidates. Any kind of leave including medical leave exceeding the aforementioned limit shall lead to extension of DNB training. It is clarified that prior approval of NBE is necessary for availing any such leave.
- b. The eligibility for DNB Final Examination shall be determined strictly in accordance with the criteria prescribed in the respective information bulletin.

EXAMINATION

FORMATIVE ASSESSMENT

Formative assessment includes various formal and informal assessment procedures by which evaluation of student's learning, comprehension, and academic progress is done by the teachers/ faculty to improve student attainment. Formative assessment test (FAT) is called as "Formative "as it informs the in process teaching and learning

modifications. FAT is an integral part of the effective teaching .The goal of the FAT is to collect information which can be used to improve the student learning process.

Formative assessment is essentially positive in intent, directed towards promoting learning; it is therefore part of teaching. Validity and usefulness are paramount in formative assessment and should take precedence over concerns for reliability. The assessment scheme consists of Three Parts which has to be essentially completed by the candidates.

The scheme includes:-

Part I:- Conduction of theory examination

Part-II :- Feedback session on the theory performance

Part-III :- Work place based clinical assessment

Scheme of Formative assessment

PART – I	CONDUCT OF THEORY EXAMINATION	Candidate has to appear for Theory Exam and it will be held for One day.
PART – II	FEEDBACK SESSION ON THE THEORY PERFORMANCE	Candidate has to appear for his/her Theory Exam Assessment Workshop.
PART – III	WORK PLACE BASED CLINICAL ASSESSMENT	After Theory Examination, Candidate has to appear for Clinical Assessment.

The performance of the resident during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student

1. Personal attributes:

- **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- **Motivation and Initiative:** Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- **Honesty and Integrity:** Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- **Interpersonal Skills and Leadership Quality:** Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- **Availability:** Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.

- **Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
- **Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- **Clinical Performance:** Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

3. Academic Activity: Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

FINAL EXAMINATION

The summative assessment of competence will be done in the form of DNB Final Examination leading to the award of the degree of Diplomate of National Board in Endocrinology. The DNB final is a two-stage examination comprising the theory and practical part. An eligible candidate who has qualified the theory exam is permitted to appear in the practical examination.

Theory Examination

1. The theory examination comprises of **Three/ Four** papers, maximum marks 100 each.
2. There are 10 short notes of 10 marks each, in each of the papers. The number of short notes and their respective marks weightage may vary in some subjects/some papers.
3. Maximum time permitted is 3 hours.
4. Candidate must score at least 50% in the aggregate of **Three/ Four** papers to qualify the theory examination.
5. Candidates who have qualified the theory examination are permitted to take up the practical examination.
6. The paper wise distribution of the Theory Examination shall be as follows:

PAPER 1: Basic sciences applied to the specialty, Principles of Endocrinology and hormone signaling, Neuroendocrinology and Pituitary disease, Growth and Maturation, Obesity , Anorexia and nutrition, Polyglandular syndromes, Research methodology

PAPER 2: Diabetes Mellitus, Parathyroid gland , Calcitropic hormones and bone metabolism, Thyroid Adrenal gland and adrenal hormones

PAPER 3: Cardiovascular endocrinology, Endocrine changes in critically ill patients, Reproductive endocrinology and sexual function Male and female reproduction, Endocrinology of pregnancy, Recent advances and Investigations

a) Practical Examination:

1. Maximum Marks: 300.
2. Comprises of Clinical Examination and Viva.
3. Candidate must obtain a minimum of 50% marks in the Clinical Examination (including Viva) to qualify for the Practical Examination.
4. There are a maximum of three attempts that can be availed by a candidate for Practical Examination.
5. First attempt is the practical examination following immediately after the declaration of theory results.
6. Second and Third attempt in practical examination shall be permitted out of the next three sessions of practical examinations placed alongwith the next three successive theory examination sessions; after payment of full examination fees as may be prescribed by NBE.
7. Absentation from Practical Examination is counted as an attempt.
8. Appearance in first practical examination is compulsory;
9. Requests for Change in center of examination are not entertained, as the same is not permissible.
10. Candidates are required not to canvass with NBE for above.

Declaration of DNB Final Results

1. DNB final is a qualifying examination.
2. Results of DNB final examinations (theory & practical) are declared as PASS/FAIL.
3. DNB degree is awarded to a DNB trainee in the convocation of NBE.

RECOMMENDED TEXT BOOKS AND JOURNALS

BOOKS

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- William, s Text book of Endocrinology Sholomo Melmed & Kenneth S Polosky, P Reed Larson & Henry M Kronenberg
 - Clinical Gynaecologic Endocrinology and Infertility Marc A Freez & Leon Speroff
 - Endocrinology Adult & Paediatric J Larry Jamesan & Leslie J Degroot
 - Oxford Handbook of Endocrinology and Diabetes John Wass , Katherine Owen
 - International Book of Diabetes Mellitus : Ralph A DeFranzo , Ele Feranninni , Paul Zimmet, KGMM Alberti
 - Werner and Ingbar's Thyroid
 - Endocrinology& Metabolism : Felig, Baxter and Broadus
 - Joslin's Diabetes Mellitus
 - Diabetes Mellitus Ellenberg & Rifkin's
 - Metabolic basis of Inherited disease Stanbury, Wtngard
 - Reproductive Endocrinology Jaffe and yen
 - Reproductive Endocrinology Speroff & Kase
 - Clinical Neuroendocrinology Martine & Besser GM ,Luciano Martini
 - Handbook of Endocrinology Dillon, Richard S
 - Immunoassay a practical Guide Brian's Law
 - RIA, Principles and Practice Pillai and Bhandarkar, 1998, BARC
 - Antibodies A laboratory manual Ed. Harlow and David lane
 - Text book of Clinical Chemistry Teitz.
 - Nutritive value of Indian Foods C. Gopalan, ICMR
 - Hypothalamic pituitary development Ed. Rapheel Rappaport serge Amselem
 - Adrenal diseases in childhood I A Hughes A J L Clark
 - Genetic disorders of Endocrine Neoplasia Patricia Dahia Charis Eng.
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- Textbook of Diabetes (Holt's) Richard IG Holt

- Metabolic basis of inherited disease (Stanbury)
 - Endocrinology Leslie J DeGroot
 - Brooks Clinical Pediatric Endocrinology Charles GD Brook , Peter Clayton, Rosalind Brown
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JOURNALS

- Journal of Clinical Endocrinology & Metabolism
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- European Journal of Endocrinology
 - Diabetes
 - Diabetes Care
 - Fertility and sterility
 - Hormone and Metabolic Research
 - Journal of Bone and Mineral Research
 - Clinical Endocrinology
 - Endocrine and Metabolic Clinics of North America
 - Endocrine Reviews
 - Diabetes Research and Clinical Practice
 - Indian journal of Diabetes and Metabolism
 - Diabetic Medicine
 - Diabetologia
 - Best Practice & Research: Clinical Endocrinology & Metabolism
 - Canadian Journal of Diabetes
 - Journal of Diabetes and Its Complications
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