



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences
Programme Structure and Course Details
Of
DM Endocrinology 2022 onwards

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

M.S. Ramaiah University of Applied Sciences
Ramaiah Medical College

Principal and Dean
M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore-560054

Dean - Academics
M.S. Ramaiah University of Applied Sciences
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**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

M.S. Ramaiah University of Applied Sciences

Programme Specifications

DM Endocrinology Programme 2022 onwards

Programme Code: MD151

M.S. Ramaiah University of Applied Sciences

Ramaiah Medical College



Shalini

Principal and Dean

M.S. Ramaiah Medical College
M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

4/20/2020

Dean - Academics

M.S. Ramaiah University of Applied Sciences
Bangalore - 560054

University's Vision, Mission and Objectives

The M. S. Ramaiah University of Applied Sciences (MSRUAS) will focus on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy and society through their imaginative, creative and innovative pursuits. Hence, the University has articulated the following vision and objectives.

Vision

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment.

Mission

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation and excellence in our teaching and research. We value integrity, quality and teamwork in all our endeavors. We inspire critical thinking, personal development and a passion for lifelong learning. We serve the technical, scientific and economic needs of our Society.

Objectives

1. To disseminate knowledge and skills through instructions, teaching, training, seminars, workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business and society
3. To promote health, human well-being and provide holistic healthcare
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunities in the society by incubating and nurturing technology product ideas and supporting technology backed business
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in
7. To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrich the experiences of faculties and students through research and developmental programmes

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Programme specifications: DM Endocrinology

Faculty	Ramaiah Medical College
Department	Endocrinology
Programme	DM Endocrinology
Programme code	DM151
Dean of faculty	Dr Shalini C Nooyi
Head of Department	Dr Pramila Kalra

1. **Title of The Award:** DM Endocrinology
2. **Modes of Study:** Full Time
3. **Awarding Institution /Body:** M.S. Ramaiah University of Applied Sciences
4. **Joint Award:** Not Applicable
5. **Teaching Institution:** Ramaiah Medical College
6. **Date of Programme Specifications:** September 2022
7. **Date of Programme approval by the academic Council of MSRUAS :** 27th September 2022
8. **Programme Approving Regulating Body and Date of Approval:** National Medical Council of India
9. **Rationale for the Programme:**

The purpose of PG education is to create specialists who would provide high quality healthcare and advance the cause of science of Endocrinology through research & training. Endocrinology is a highly specialized and technical discipline in clinical practice comprising treatment with multiple sub specialties in itself, which includes Neuroendocrinology, Disorders of Growth and Puberty, Thyroid and adrenal disorders, Diabetes mellitus, and bone and mineral metabolism. With a view to update, by inclusion of newer topics, and to provide a uniform syllabus and course contents in Indian universities and teaching medical institutions, the proposed guidelines provide course outlines based on recent developments in clinical practice and other disciplines related to Endocrinology.



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Programme objectivesAt the end of the program the students should

- PO1.** Develop the knowledge, skills and attitude to be a competent Endocrinologist
- PO2.** Demonstrate a commitment to excellence and continuous professional development with integrity. To be compassionate and sensitive to patient care.
- PO3.** To be able to Acquire and develop the knowledge, skills and attitude required to be a competent Endocrinologist and ethical researcher and teacher.
- PO4.** To be able to function as an independent clinician/consultant with a reasonable degree of professionalism and competence.

Program specific outcomes (PSO) for post graduate students

At the end of the course the candidate who is eligible for a DM degree in Endocrinology should acquire:

- PSO1.** knowledge in the basic, comparative and translational and clinical endocrinology, diabetes and metabolism
- PSO2.** clinical diagnostic critical thinking, problem solving, self-directed learning and procedural skills,
- PSO3.** Skills as related to formulating research questions, initiating, conducting and analysing translational, clinical and epidemiologic research,
- PSO4.** Team leadership and networking skills,
- PSO5.** Communication skills necessary for working with and educating patients and team members,
- PSO6.** Attitudes and values that will allow him or her to provide compassionate, responsive and respectful ethical care to the patient.



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Course-PO-PSO Mapping

Course Code and name	Program Outcomes				Program Specific Outcomes					
	POs				PSOs					
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
DMC505A Basic Sciences relevant to Endocrinology and Metabolism	3	3	3	2	3	2	2	3	2	3
DMC506A Clinical endocrinology and Metabolism disorders	3	3	3	3	3	2	3	2	3	3
DMC507A Therapeutic Endocrinology, Metabolism and Laboratory Technology	3	3	3	3	3	3	3	3	2	3
DMC508A Recent advances in Endocrinology and Metabolism	3	3	2	3	3	3	3	3	2	3



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10. Regulations:**(A) Attendance, Progress and Conduct**

1. A candidate pursuing degree course should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run or work in clinic/laboratory/nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of study.
2. Each term shall be taken as a unit for the purpose of calculating attendance. Attendance of 80% every term is mandatory for appearing in the final university examination.
3. Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each term as prescribed by the department and not absent himself / herself from work without valid reasons.
4. Every candidate is required to attend a minimum of 80% of the training during each academic term of the post graduate course. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.
5. Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

(B) Monitoring of progress of Studies

1. Work diary / Log Book - Every candidate shall maintain a work diary and record of his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. as per the model checklists and logbook specimen copy.
2. Special mention may be made of the presentations by the candidate as well as details of clinical or planning procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the university practical/clinical examination.
3. Procedure for defaulters: There will be a committee constituted by all teachers to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default, the departmental committee may recommend that defaulting candidate will be withheld from appearing the examination, if she/he fails to fulfil the requirements in spite of being given adequate chances to set himself or herself right.

11. Teaching Learning Methods:

This being a highly dedicated PG super specialty introducing several new concepts/subjects in the course, it is recommended to divide the entire course into two components consisting of First Year of BASIC CONCEPTS OF THE SPECIALTY and the next two years of INTENSIVE CLINICAL TRAINING IN THE SPECIALTY.

Didactic lectures are of least importance; seminars, journal clubs, symposia, reviews, and guest lectures should get priority for acquiring theoretical knowledge. Bedside teaching,

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grand rounds, interactive group discussions and clinical demonstrations should be the hallmark of clinical/practical learning. Students should have hands-on training in performing various procedures and ability to interpret results of various tests/investigations. Exposure to newer specialized diagnostic/therapeutic procedures should be given. Importance should be attached to ward rounds especially in conjunction with emergency admissions.

Supervision of work in outpatient department should cover the whole range of work in the unit. It is particularly necessary to attend sub-specialty and symptom specific clinics. The development of independent skills is an important facet of postgraduate training. Joint meetings with physician colleagues, e.g. radiologists and pathologists play a valuable part in training. The training techniques and approach should be based on principles of adult learning. It should provide opportunities initially for practicing skills in controlled or simulated situations. Repetitions would be necessary to become competent or proficient in a particular skill. The more realistic the learning situation, the more effective will be the learning. Clinical training should include measures for assessing competence in skills being taught and providing feedback on progress towards a satisfactory standard of performance. Time must be available for academic work and audit. The following is a rough guideline to various teaching/learning activities that may be employed:

1. Intradepartmental and interdepartmental conferences related to case discussions.
2. Ward rounds along with emergency admissions.
3. Attendance at sub-specialty programme
4. external rotation postings in Onco reconstruction, Hand Surgery and Cleft surgeries.
5. Skills training
6. Conferences, Seminars, Continuing Medical Education (CME) Programmes.
7. Journal Club
8. Research Presentation and review of research work.
9. A postgraduate student of a postgraduate degree course in super specialties would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.
10. Participation in workshops, conferences and presentation of papers etc.
11. Maintenance of records. Log books should be maintained to record the work done which shall be checked and assessed periodically by the faculty members imparting the training.
12. Postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
14. Department should encourage e-learning activities.
15. Faculty Lecture during 4th week: Helps in bridging the gap between what is presented during the month and what is not about particular topic. Also it reinforces learning

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12. Innovative teaching learning practices

1. Theme based teaching learning activities eg..Hands on Insulin Pumps
- 2.Focused discussion during journal club inculcates culture in the areas of research and publication

13. Assessment: It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching/learning activities.

1. Regular formative assessments : At the end of 6 months which includes Open book exams, OSCE, Viva Impact: SWOT analysis can be done and timely counselling can be done.
2. Theory paper covering basic topics in Endocrinology at the end of 1st year. FA at the end of second year will be on common Endocrinological disorders. Mock summative assessment will be conducted in the same pattern as university exams three months before the final exams.
3. Teaching skills: Candidates are encouraged to teach undergraduate medical students and paramedical students, if any. In addition, the second year student acts as a mentor for the immediate junior in all aspects of the course.
4. Blue printing of the question for the formative assessment
 - 1st year – Basic sciences relevant to the discipline of endocrinology and metabolism
 - 2nd year – Clinical aspects and diagnosis of endocrinology and metabolism disorders
 - 3rd year – Therapeutic aspects of endocrinology and Metabolism and Laboratory technology and Recent Advances in Endocrinology & Metabolism
5. Pedagogy: as a tool in formative assessment helps the student to be a better teacher
5. Assessment of seminar and journal club presentations by faculty
6. Documentation in log books with periodic monitoring by faculty
7. Formulation and conduct of a research project
8. Summative assessment:

Theory: 400 marks



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The examinations shall be organised on the basis of 'Grading' or 'Marking system' to evaluate and to certify postgraduate student's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole.

There will be four theory papers, as below:

All the papers shall consist of ten long answer questions carrying 10 marks each and a total of 3 hours duration

Name of the course	Course Code	Topics	Marks
Basic sciences relevant to Endocrinology and research methodology	DMC505A	Anatomy, physiology knowledge behind disorders of metabolism, basics of research methodology	100
Clinical endocrinology and metabolism disorders	DMC506A	Diagnosis and workup of disorders under Endocrinology and metabolism	100
Therapeutic endocrinology and Metabolism and Laboratory technology	DMC507A	Treatment of various disorders under endocrinology and metabolism, principles of various laboratory tests	100
Recent Advances in Endocrinology & Metabolism	DMC508A	Newer developments in the field of endocrinology and disorders of metabolism	100

Clinical Component: 200 marks

Oral examination shall be comprehensive enough to test the student's overall knowledge of the subject. The clinical/practical examination shall be held as per norms and as per the prevailing rules of the training institute/ University rules. A broader outline is suggested below:

There would be four examiners for clinical examination. These would comprise of two internal and two external examiners. There should be long/ semi-long/ short/ spot cases covering different aspects of Endocrinology, of which at least one long case must be on Diabetes. The post graduate students may also be assessed on endocrinological histopathology/ cytopathology slides, radiological investigations, ability to evaluate laboratory data in clinical endocrinology and viva-voce. The logbook of procedures and interventions shall also be assessed in the practical examination. The research paper shall be presented.



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Structured clinical exam for different exercises will be assessed for 200 marks.

This mainly involves a long Case discussion for 100 marks. Short cases: 2 in number each comprising 50 marks or 5 spotters each of 20 marks may be included as per the discretion of the external examiner.

Viva voce Component: 100 marks

Structured Viva Voce exam for 100 marks will be conducted during clinical exam.

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition, candidates may be also be given case reports, charts, gross specimens, pathology slide, Instruments, X-rays, ultrasound, CT/MRI/functional images for interpretation.

Maximum marks for DM degree course	Theory	Practical	Viva	Grand Total
	400	200	100	700

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Annexures

- Annexure 1_Overall course plan year-wise
- Annexure 2_Sample of monthly schedules
- Annexure 3_PG outside posting policy
- Annexure 4_Logbook entry
- Annexure 5_Students appraisal form



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Annexure 1MONTHWISE TEACHING SCHEDULE FOR POST GRADUATES DEPARTMENT OF ENDOCRINOLOGY

MONTH	TOPICS	Teacher
January: Diabetes	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
February: Diabetes	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
March : Diabetes	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
April: Neuroendocrinology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
May: Neuroendocrinology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
June: Thyroid ology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
July: Thyroid ology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
August: Disorders of adrenal cortex and medulla	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
September: Disorders of Pancreas	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
October : Reproductive Endocrinology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
November: Reproductive Endocrinology	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator
December: Bone and mineral metabolism	According to the rotation of the post graduates which includes subject seminars, Journal club, Recent advances and clinical case discussions	Moderator

Note:

1. The respective faculty will be in charge of the entire process planning, implementation and assessment.
2. It is preferable to put the time table latest by 25th of previous month.
3. PGs are expected to keep in touch with the respective teachers well ahead of the class.

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Annexure 2_Sample of monthly schedules
TEACHING SCHEDULE FOR POST GRADUATES **THEME: Neuroendocrinology**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Guideline discussion	2 Case presentation	3 Endo-radio meet
4 Sunday	5 Journal club	6 Case presentation	7 Subject seminar	8 Guideline discussion	9 Case presentation	10 Grand rounds
11 Sunday	12 Journal club	13 Case presentation	14 Subject seminar	15 Guideline discussion	16 Case presentation	17 Grand rounds
18 Sunday	19 Journal Club	20 Case presentation	21 Subject seminar	22 Guideline discussion	23 Case presentation	24 Grand rounds
25 Sunday	26 Journal Club	27 Case presentation	28 Subject seminar	29 Faculty lecture	30 Case presentation	

Instructions: -

- All classes will be based on discussion
- Both students should discuss with each other prior to the class and present
- The team shall discuss with the teacher at least 3-5days before the date of the class.
- The week's doubts clarifications to be discussed with the faculty on Saturdays.
- All the best



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ANNEXURE – 3
DEPARTMENT OF ENDOCRINOLOGY

POLICY FOR OUTSIDE PG POSTINGS

Year wise PG Posting

1. 1st year students are posted for 2 weeks each in the Departments of Cardiology and Nephrology.
2. 2nd year students are posted for 3 months in the Department of Radiology, Nuclear Medicine, Pathology and Cytology, Ophthalmology
3. 3rd year students will also have postings in Endocrine and Metabolic Lab: 2.5 months, Genetic Lab : 2 weeks



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LOG BOOK

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LOG BOOK

Table 2 : Academic presentations made by the student

Name:

Admission Year:

College:

Date	Topic	Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching etc.



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LOG BOOK

Table 3 : Dynamic testing performed

Name:

Admission Year:

College:

Date	Name	ID No.	Procedure	Category O, A, PA, PI*

- * Key:
- O - Observed
 - A - Assisted
 - PA - Performed procedure under the direct supervision of a senior
 - PI - performed independently

Student's signature

Guide's Signature



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Annexure 5

POSTGRADUATE STUDENTS APPRAISAL FORM

Name of the Department:

Name of the Student:

Period of Training: From To

0: Poor, 1: Average, 2: Good, 3: Very good, 4: Exceptional

Sl. No.	Particulars	Poor 0	Below Average 1	Average 2	Good 3	VeryGood 4
1.	Ability to teach UG students and Juniors					
2.	Knowledge of Subject in PG course					
3.	Performance in Journal Club					
4.	Performance in Seminar					
5.	Punctuality at work					
6.	Ability to work in a team					
7.	Attitude towards colleagues/Faculty					
8.	Ability to communicate with students					
9.	Departmental and interdepartmental activity initiatives					
10.	Thesis /Research work					
11.	Logbook maintenance					
12.	IA eligibility					
13.	Publications					
14.	Paper/Poster presentations					
15.	Remarks					

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 3 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE

SIGNATURE OF HOD

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Course Specifications DM Endocrinology

2022 onwards

Course Code: DMC505A



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Course Specifications

Course Title	Basic Sciences relevant to endocrinology and metabolism
Course Code	DMC505A
Department	Endocrinology
Faculty	Ramaiah Medical College

Course summary:

To gain knowledge in the basic, comparative and translational and clinical endocrinology including immunology and biostatistics.

Course Outcomes:

CO 1: Student should be well versed with common endocrinological conditions.

CO 2: Should have basic knowledge of endocrine functions

CO 3: Should be able to have a thorough understanding of metabolism

CO 4: To understand the Principles and performance of biostatistics and Basic applied immunology

CO5: Be able to plan and conduct a research proposal in the specialty in accordance with guidelines of Ethics Committee and critically evaluate published literature in medical journal.

CO6: Acquire relevant knowledge of biostatistics so as to be able to critically read and judge new literature. x. Recognize the value of ethical principles of patient care and research.

Course Content:

1. History of Endocrinology
2. General principles of hormone synthesis, action, degradation, receptors, analogues and antagonists
3. Receptors, biorhythms
4. Endocrine Anatomy, Biochemistry and Physiology
5. Endocrine Pharmacology and Pharmacokinetics
6. Metabolism of fat, protein, carbohydrates and other nutrients
7. Endocrine Pathology and Cytology
8. Endocrine functions from foetal to adult life
9. Genetics including cytogenetics and applied genetics including principles of Sanger sequencing and the importance of next generation sequencing and applied inherited basis of disease.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
DMC505A Basic Sciences relevant to endocrinology and metabolism	CO 1	3	3	3	2	3	2	2	3	2	3
	CO 2	2	3	3	2	3	3	3	3	3	2
	CO 3	3	2	2	2	3	3	3	2	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications DM Endocrinology

2022 onwards

Course Code: DMC506A



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Course Specifications

Course Title	Clinical endocrinology and metabolism disorders.
Course Code	DMC506A
Department	Endocrinology
Faculty	Ramaiah medical College

Course Summary:

This course is designed in such a way that the student will demonstrate a thorough knowledge of epidemiology, natural history, pathological abnormalities, etiopathogenesis, clinical manifestations and principles of diagnosis of various endocrine disorders of adults and children including diabetes

Course Outcomes:

CO1: Plan appropriate investigations applicable for diagnosis and management of patients in a cost-effective manner and interpret correctly the results of various routine and specialized investigations necessary for proper management of the patients with endocrine diseases.

CO2: Acquire adequate knowledge of application of various endocrine laboratory techniques, especially, immunoassays and other methods of hormonal assay and interpretation of laboratory values and a basic knowledge of molecular genetics.

CO3: Acquire knowledge of the functioning of various equipments in routine use in the Endocrinology lab.

CO4: Should be able to perform basic tests of metabolism

Course Content:

1. Endocrine stimulation and suppression tests. (Dynamic testing eg., ACTH & LHRH stimulation tests, water deprivation test, Prolonged (72 hr) fast).
2. Hormone and metabolic assays,
3. Autonomic Function Testing,
4. Creation and usage of electronic medical record
5. Formulation of nutrition plan, counselling and patient education in diabetes, that should include practical aspects of handling the diabetes foot and ocular problems.



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
DMC506A Clinical endocrinology and metabolism disorders	CO 1	3	3	3	2	3	2	2	3	2	3
	CO 2	2	3	3	2	3	3	3	3	3	2
	CO 3	3	2	2	2	3	3	3	2	3	3
	CO 4	3	3	2	2	2	3	3	2	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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Course Specifications DM Endocrinology

2022 onwards

Course Code: DMC507A



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Course Specifications

Course Title	Therapeutic endocrinology, Metabolism and Laboratory technology
Course Code	DMC507A
Department	Endocrinology
Faculty	Ramaiah medical college

Course Summary:

This course is designed in such a way that the student will acquire clinical skills and knowledge about the various endocrine disorders of adults and children and management.

Course Outcomes:

CO1: Endocrinology of normal growth and aberrant growth disorders. Para endocrine syndromes, Hormonal manifestations of malignancy, Carcinoid tumors and carcinoid syndromes.

CO2: Knowledge about the disorders affecting the metabolism of carbohydrate and lipids.

CO3: Knowledge about poly endocrine disorders, disorders involving adrenal and reproductive system.

CO4: Endocrine changes of pregnancy **CO5:** Endocrinology of HIV and AIDS, Immuno endocrinopathy Syndrome.

Course Content:

1. Adrenal – Adrenal cortical disorders, Adrenal Medullary diseases, Endocrine Hypertension. Congenital Hypothyroidism .
2. Reproductive system- Sexual differentiation, Testicular disorders, Ovarian disorders, Hormonal contraception, sexual dysfunction in men and women, disorders of sex development, disorders of puberty.
3. Endocrinology of normal growth and Aberrant growth disorders Diabetes in pediatric age group and the quality of life on a long term basis Delayed secondary sexual characteristics in adolescents
4. Mineral Metabolism – Hormones and Disorders of Mineral Metabolism, Metabolic bone disease, Hypoparathyroidism & Hyperparathyroidism , Hormonal manifestations of malignancy, Carcinoid tumors and carcinoid syndromes.
5. Endocrinology of HIV and AIDS
6. Gastro intestinal hormones and Gut hormones
7. Endocrine changes of pregnancy
8. Immuno endocrinopathy syndrome



Shalini

Yedha. Gao
Dean - Academics

Approved by the Academic Council at its 27th meeting held on 27 September 2022

Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
DMC507A Therapeutic endocrinology, Metabolism and Laboratory technology	CO 1	3	3	3	2	3	2	2	3	2	3
	CO 2	2	3	3	2	3	3	3	3	3	2
	CO 3	3	2	2	2	3	3	3	2	3	3
	CO 4	3	3	2	2	2	3	3	2	3	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											



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M. S. Ramaiah

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M.S. Ramaiah Medical College and Hospital
M.S. Ramaiah University of Applied Sciences
Bangalore - 560034

Course Specifications DM Endocrinology

2022 onwards

Course Code: DMC508A



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Course Specifications

Course Title	Recent Advances in Endocrinology & Metabolism
Course Code	DMC508A
Department	Endocrinology
Faculty	Ramaiah Medical College

Course Summary:

This course is designed in such a way that the student will be able to acquire skills to understand and learn from the recent developments in the field of endocrinology and put it into clinical practice.

Course Outcomes:

- CO1: Updated knowledge of technologies used in Endocrinology
CO2: Updated knowledge on the drugs used in the practice of Endocrinology
CO3: Knowledge about the recent published research papers in the subject.

Course Content:

1. Role of cytokines in the pathogenesis of CAD in Type 2 Diabetes
2. HIV endocrinopathy
3. GH doping
4. Newer modes and efficacy of glucose monitoring devices and insulin delivery devices
5. Islet transplantation- the feasibility and long term prognosis
6. DPP 4 inhibitors
7. Recombinant insulin
8. Critical appraisal of recombinant PTH and its use in osteoporosis
9. Metformin in pregnancy
10. Hypothyroidism and pregnancy
11. Anorexigenic peptides



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Course Mapping (CO-PO-PSO Mapping)

Course Code and name	Course Outcomes	Program Outcomes				Program Specific Outcomes					
		PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
DMC508A Recent Advances in Endocrinology & Metabolism	CO 1	3	3	3	2	3	2	2	3	2	3
	CO 2	2	3	3	2	3	3	3	3	3	2
	CO 3	3	2	2	2	3	3	3	2	3	3
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution											




Registrar

M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

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Principal and Dean



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Bangalore-560054

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Course Materials:**Books**

1. Williams Text book of Endocrinology
2. Harrison's Textbook of Medicine
3. Nelson's Textbook of pediatrics
4. Degroot
5. Pickup and Williams
6. Joslin's Textbook of Diabetes
7. Sperling Pediatric Endocrinology
8. Ingbar Thyroid
9. Meena Desai Pediatric Endocrinology
10. Levines Practical Manual on Endocrinology

Journals**International:**

1. Journal of Clinical Endocrinology and Metabolism
2. Clinical Endocrinology
3. Endocrine Reviews
4. NEJM
5. Lancet
6. Diabetes Care
7. Journal of bone and mineral research
8. Calcific tissue international
9. Nature
10. Nature clinical practice of endocrinology and metabolism
11. Pituitary
12. JAMA
13. BMJ

National:

1. National Medical Journal of India
2. Indian Journal of Endocrinology
3. Thyroid Research and Practice

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Y. L. Rao

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