

Department of Respiratory Care

Course Specification of Sleep Disorders & Polysomnography

Course No. (08 05 881)2023/

XCVI.Course Description:

This comprehensive course explores the fascinating world of sleep, encompassing normal sleep physiology, the spectrum of sleep disorders, and the essential diagnostic tool of polysomnography (PSG). Students will delve into the history and evolution of sleep medicine, understanding the underlying mechanisms of sleep-related breathing disorders, hypersomnolence, movement disorders, and circadian rhythm disturbances. They will master the technical aspects of PSG, from patient preparation and equipment setup to signal acquisition, artifact identification, and interpretation. The course will emphasize practical skills in performing overnight sleep studies, PAP titrations, and other specialized studies. Additionally, students will gain insights into the role of sleep technologists, pediatric sleep medicine, and the impact of medications on sleep. This course prepares students to be competent in the field of sleep medicine, equipped to diagnose and manage sleep disorders effectively.

C

A – Theoretical Aspect: (if any)

S	Units/ Topics List	No. of Weeks	Contact hours	
1	Introduction to Sleep Medicine: - History and development of sleep medicine - Overview of sleep stages and architecture - Importance of sleep for health and well-being	1	2	
2	Normal Sleep Physiology: - Neurobiology of sleep and wakefulness - Circadian rhythms and their regulation - Physiological changes during sleep (brain waves, muscle tone, breathing)	2	2	
3	Sleep-Related Breathing Disorders: - Obstructive Sleep Apnea (OSA) in adults and children - Central Sleep Apnea (CSA) and its subtypes - Obesity Hypoventilation Syndrome (OHS)	3	2	
4	Sleep-Related Hypoventilation Disorders and Central Disorders of Hypersomnolence: - Detailed pathophysiology, risk factors, and clinical presentation of these disorders - Diagnostic approaches and treatment options - Focus on Narcolepsy Type I and II	4	2	
5	Sleep-Related Movement Disorders and Circadian Rhythm Disorders: - Restless Legs Syndrome (RLS) - Delayed Sleep-Wake Phase Disorder (DSWPD) - Other relevant movement and circadian rhythm disorders	5	2	
6	Polysomnography (PSG): The Basics - Introduction to PSG and its applications - Types of sleep studies (in-lab vs. home sleep apneatests) - Basic equipment setup and signal acquisition	6	2	
7	PSG: Signal Analysis and Interpretation - Sleep staging and scoring - Identification of respiratory events (apneas, hypopneas, snoring) - Analysis of limb movements and other sleep-related phenomena	7	2	

8	Mid-Term Exam		8	2	
9	PSG: Artifacts and Troubleshooting	- Common artifacts and their sources - Strategies for troubleshooting technical issues - Importance of data quality for accurate interpretation	9	2	
10	Performing an Overnight Sleep Study:	- Patient preparation and instructions - Equipment setup and sensor placement - Monitoring and troubleshooting during the study	10	2	
11	PAP Titration:	- Principles of PAP therapy (CPAP, BiPAP) - Titration protocols and goal setting - Troubleshooting and patient education	11	2	
12	Other Types of Sleep Studies:	- Multiple Sleep Latency Test (MSLT) - Maintenance of Wakefulness Test (MWT) - Actigraphy and other emerging technologies	12	2	
13	Cardiac Rhythms in Sleep:	- Normal and abnormal heart rhythms during sleep - Arrhythmias associated with sleep apnea and other sleep disorders - Implications for diagnosis and treatment	13	2	
14	Pediatric Sleep Medicine and Medications:	- Unique considerations in diagnosing and managing sleep disorders in children - Impact of medications on sleep architecture and quality	14	2	
		Pharmacological interventions for sleep disorders			
15	Sleep Study Reporting:	- Components of a comprehensive sleep study report - Standardized terminology and scoring guidelines - Ethical considerations and legal requirements	15	2	
16	Final Exam		16	2	
TOTAL			16	32	-
Number of Weeks /and Units Per Semester			16 weeks	2 Credits	-

B - Practical Aspect: (if any)

S	Tasks/ Experiments	Number of weeks	contact hours	CILOs
1	Not applicable	-	-	-
TOTAL		-	-	-
Number of Weeks /and Units Per Semester		-	-	-

VI. Teaching strategies of the course:

135. Lecture method
136. Brainstorming
137. Demonstration
138. Case study discussions

VI. Schedule of Assessment Tasks for Students during the Semester

Theoretical part

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Attendance and Activities	15 th week	5	5%	a, b
2	Student assignment	5 th and 12 th week	5	5%	b
3	Mid-term exam	7 th or 8 th week	20	20%	a, b
4	Final exam	16 th -17 th week	70	70 %	a, b, c, d
Total Theory Weight			100	100%	