

Introduction to Stress and Fatigue –Management on board ships



Introduction to Stress and Fatigue –Management on board ships

Course Information

Course	Introduction to Stress and Fatigue –Management onboard ships
Academic year	B.Sc. –SEM 6/
Credit	1 (15 hrs)

Lecturer(s)

Lecturer

Coordinator

Contact

General Learning Objectives [GLOs]

- * 1. Introduction to Stress
- * 2. Introduction to Fatigue
- *3. Impact on Health of Seafarer and Safety of Ship.
- *4. Management of Stress and fatigue onboard ships

Introduction to Stress and Fatigue –Management on board ships

Specific Learning Objectives (SLO):

1.0 Introduction to the term Stress-

Upon completion of the course, students should be able to:

- 1.1 Define 'STRESS'
- 1.2 Understand 'Triggers' of Stress.
- 1.3 Identify common causes of Stress and Workplace stress
- 1.4 Analyze symptoms of stress

2.0 Introduction to the term Fatigue-

Upon completion of the course, students should be able to-

- 2.1 Define 'Fatigue'
- 2.2 Differentiate among; Tiredness, Fatigue, Burn-out, Stress, Sleepiness
- 2.3 Cognize causes of Fatigue
- 2.4 Glean out factors which influence onset of Fatigue
- 2.5 Analyze signs and symptoms

3.0 Impacts of Stress and Fatigue-

Upon completion of the course, students should be able to-

- 3.1 Take cognizance of effects of stress on Individual seafarer,
- 3.2 Understand effect of Fatigue on health of seafarer,

- 3.2 Understand cumulative causal effect leading to maritime accidents/near-misses,
- 3.4 Manage Stress and Fatigue for own health, ship-safety and for cleaner seas.

CASE STUDIES TO BE DISCUSSED FOR TWO L- Hours.

Introduction to Stress and Fatigue –Management on board ships

Content Synopsis:

Stress and fatigue have been generally misunderstood in shipping parlance; though being associated with catastrophic consequences of seafarers' life and losses to blue economy alike. Our Late President A.P.J.A Kalam had said 'Every problem is an opportunity for a solution' and aligned with that, awareness of a problem gives better solutions.

Hans Selye, founder of the stress theory had defined stress 'a nonspecific result of any demand on the body'. Stress at workplace is generally felt as anxiety to meet deadlines or to meet the targets. Work management is the key to challenge. There are various dimensions to stressful events. Individual response to stimuli is dependent on other factors as well (*Sic*).

Stressful events are known as stressors and stressors are perceived differently by different individuals and even events may not affect everyone similarly. It is therefore needed to know signs and symptoms of stress.

Workplace stress is identified mostly with physical hazards, workload, role conflict, peer pressure, barriers of communication, power-distance of cultural disposition [multinational/ cultural crew], demotivating ambience, bullying, lack of control over work etc.

Fatigue, in particular is complex state which is neither tiredness nor sleepiness. It is lack of alertness which impairs decision making and so reduces mental performance. Needless to add that physical performance is compromised and perpetuity of uncontrolled fatigue leads mostly towards stress. Health effect of fatigue leads to many other health disorders—a burden to individual, society and to industry. STCW convention needs a mention here as it went through various amendments and human factor was diagnosed to be one of the links of error-chain for various accidents in 1990s. ISM code has also echoed on making a culture of safety by harnessing human element and its limitations due to various determinants into as risk/accidents mitigating elements; couple of them as Stress and Fatigue. Rest hours of STCW as amended and defined work hours of MLC 2006 are few of the preventive/corrective administrative control mechanism towards minimizing the risks due to Stress and Fatigue.

Stress and Fatigue management through awareness as building block, by soft skills and through other tools are need of the hour, from a stage when students take admission for pre-sea training. So that he/she has molded himself /herself mentally and physically to meet rigors and demands of seafaring as seafarer to be understood as 'key-worker' after NEPTUNE DECLARATION during Pandemic.

Introduction to Stress and Fatigue –Management on board ships

Course Delivery

Instructional method

- Lecture
- Tutorial
- Guided Self-Study
- Projects/Tests (30%)

Course Assessments

- Presentations (10%)
FORMATIVE-(F)- DURING CLASS/SELF
LEARNING= 40% total of above two
- SUMMATIVE-(S)- (60%)
- Total of (F+S)=100%
- Pass %= 60

Suggested Literature - Appendix - I

Mandatory -Appendix II

Notes:

- Attendance can be through direct contact or through online mode.
- Course attendance (100%) has to be completed within the stipulated time.
- Attendance to be maintained by Student & Lecturer.
- Students are encouraged to attend equivalent Courses (e.g., NPTEL Swayam; AICTE etc.) for their own benefit.

Timetable

Hours	Type	Topic	Reading(s)	Remarks
Week 1				
2	Lecture	GLO UNIT 1	MLC 2006	
2	Tutorial	GLO UNIT 1		
1 to 2	Presentations /Questions			
Week 2				
2	Lecture	GLO UNIT 2	ISM Code	
2	Tutorial	GLO UNIT 2		
1 to 2	Presentations /Questions			
Week 3				
2	Lecture	GLO UNIT 3	Suggested books as in 'Literature-ref'	
2	Tutorial	CASE STUDIES		
1 to 2	Presentations /Questions			
Week 4				
	Assessments: Presentations /Project work			

DISCUSSION NOTE

ISWAN HELP DESK DATA

CASE-1

ANNEX 1

ISWAN's Seafarer Help helpline, which is a 24*7 helpline, available free of cost for seafarers.

From the beginning of the COVID-19 pandemic up till 10th of Jan. 2021, our helpline has received:

Total Number of 2613 cases/contacts from seafarers

Total number of Seafarers Involved: 25270

Top 5 most reported issues:

Seeking financial assistance /Financial difficulties 1416

Repatriation Problem/Difficulty due to Coronavirus outbreak 607

Information query Re. Employment / joining / repatriation/Port restrictions/Visa/Government support. Etc. 294

Health/Medical Psychological (Stress, anxiety) 99

Unpaid wages/wage concern (Forced/Unpaid self-isolation/Salary cut) due to Coronavirus 79

Other issues being reported to us by seafarers/service users include:

- health/Safety concerns Re. ship joining/sick crew onboard/ picking up passenger from countries with big outbreak/crew member under quarantine, impact on ship's operation, Inadequate/Lack of PPE for crew members
- Welfare issues, shortage of Food/water supply
- Health/Medical Physical Issues (Seafarer is not well but cannot get medical treatment/Seafarer contracted virus.)
- *Early dismissal/ Contract cancelled /Termination of Contract*
- *Unable to join ship due to Coronavirus outbreak*
- *Seeking employment*
- *Fatigue (Tiredness Exhaustion No Rest)*
- *Unable to get certificate/Visa extended*
- *Unable to have shore leave*

Abuse Bullying Harassment Discrimination

SUGGESTED LITERATURE

1. ISWAN <http://www.seafarerswelfare.org/>
2. CASE STUDY DATA - ANNEX 1
3. Risk Factors for Fatigue in Shipping, the Consequences for Seafarers' Health and Options for Preventive Intervention Wessel M A van Leeuwen et al;
4. Information Environment, Fatigue, and Culture in the Maritime Domain Margareta Lützhöft.
5. Study on the assessment of seafarers' fatigue Alain Cuetos.
6. Psychological stress in seafarers: a review- marlondescartin
7. The Positive Psychology of Maritime Health Malcolm Maclachlan
8. Work-related stress at sea-self-estimation by maritime students and officers Thodoris Agathos
9. An in-depth analysis of machine learning approaches to predict depression Md. SababZulfiker et al
10. Ship first: Seafarers' adjustment of records on work and rest hours Raphael Baumler et al;
11. Sleep and Fatigue Among Seafarers: The Role of Environmental Stressors, Duration at Sea and Psychological Capital. Sigurd W. Hystad, et al;
12. Determinants of seafarers' fatigue: a systematic review and quality assessment Solveig BoeggildDohrmann Gander P, Purnell
13. H, Garden A, Woodward A. Work patterns and fatigue-related risk among junior doctors. Occup Environ Med. 2007; 64:733–8. [PMC free article] [PubMed]
14. Ferrara M, De Gennaro L. How much sleep do we need? Sleep Med Rev. 2001; 5:155–79. [PubMed]
15. Improving alertness through effective fatigue management. 2005. Available from: <http://www.hse.gov.uk/research/rrhtm/rr318.htm>.
16. Dawson D, Chapman J, Thomas MJ. Fatigue-proofing: A new approach to reducing fatigue-related risk using the principles of error management. Sleep Med Rev. 2011;1–9. [PubMed]
17. Shahraki S, Bin Abu Bakar N. Effects of nervous fatigue on workforce productivity. Int J Acad Res. 2011; 3:370–8.
18. Stuijbergen AK, Rogers S. The experience of fatigue and strategies of self care among persons with multiple sclerosis. Appl Nurs Res. 1997; 10:2–10. [PubMed]
19. SadeghniaatHaghighi K, Montazeri A, KhajehMehrizi A, Aminian O, RahimiGolkhandan A, Saraei M, et al. The Epworth Sleepiness Scale: Translation and validation study of the Iranian version. Sleep Breath. 2013;17:419–26. [PubMed]
20. Caldwell JA, Mallis MM, Caldwell JL, Paul MA, Miller JC, Neri DF. Aerospace

- Medical Association. Fatigue countermeasures in aviation. *Aviat Space Environ Med.* 2009; 80:29–59. [PubMed]
21. Razmpa E, SadeghNiat K, Saedi B. Urban bus drivers' sleep problems and crash accidents. *Indian J Otolaryngol Head Neck Surg.* 2011; 63:269–73. [PMC free article] [PubMed]
 22. Pasupathy KS, Barker LM. Impact of fatigue on performance in registered nurses: Data mining and implications for practice. *J Healthcare Quality.* 2012; 34:22–30. [PubMed]
 23. Horrey WJ, Noy YI, Folkard S, Popkin SM, Howarth HD, Courtney TK. Research needs and opportunities for reducing the adverse safety consequences of fatigue. *Accidents Analysis Prev.* 2011; 43:591–4. [PubMed]
 24. Dawson D, Searle AK, Paterson JL. Look before you (s) leap: Evaluating the use of fatigue detection technologies within a fatigue risk management system for the road transport industry. *Sleep Med Rev.* 2014; 18:141–52. [PubMed]
 25. Aaronson LS, Teel CS, Cassmeyer V, Neuberger GB, Pallikkathayil L, Pierce J, et al. Defining and measuring fatigue. *Image J Nurs Sch.* 1999; 31:45–50. [PubMed]
 26. Wierwille WW, Ellsworth LA. Evaluation of driver fatigue by trained raters. *Accid Anal Prev.* 1994; 26:571–8. [PubMed]
 27. Horne JA, Ostberg O. A self-assessment questionnaire to determine morningness-eveningness in human circadian rhythms. *Int J Chronobiology.* 1976; 4:97–100. [PubMed]
 28. Dings D, Powell J. Microcomputer analyses of performance on a portable, simple visual RT task during sustained operations. *Beh Res Meth Instr Comp.* 1985; 17:652–5.
 29. Eptein J. 1th ed. New York: McGraw-Hill Publication; 2007. A good night's sleep; pp. 229–41.
 30. McCorkle R, Young K. Development of a symptom distress scale. *Cancer Nurs.* 1978; 1:373–8. [PubMed]
 31. McNair DM, Lorr M, Droppleman LF. San Diego, CA: Educational and Industrial Testing Services; 1971. Manual for the profile of mood states.
 32. Folkatd S, Lombardi DA, Tucker PT. Shift work: Safety, sleepiness and sleep. *Ind Health.* 2005; 43:20–3. [PubMed]
 33. Pérez-Chada D, Videla AJ, O'Flaherty ME, Palermo P, Meoni J, Sarchi MI, et al. Sleep habits and accident risk among truck drivers. A cross-sectional study in Argentina. *Sleep.* 2005; 28:1103–8. [PubMed]
 34. Sadeghniiat-HaghighiKh, Yazdi Z, Jahanihashemi H, Aminian O. The effect of bright light on sleepiness among rapid-rotating 12-hour shift workers. *Scand J Work Environ Health.* 2011; 37:77–9. [PubMed]
 35. Sadeghniiat-HaghighiKh, Aminian O, PouryaghoubGh, Yazdi Z. Efficacy and hypnotic effects of melatonin in shift-work nurses: Double-blind, placebo-controlled crossover trial. *J Circadian Rhythms.* 2008; 6:10. [PMC free article] [PubMed]
 36. Gander P, Graeber RC, Belenky G. Fatigue risk management. In: Kryger MH, Roth TR, Dement CD, editors. *Principles and Practice of Sleep Medicine.* 5th ed. Philadelphia: W.B. Saunders; 2011. pp. 760–8.
 37. Bereavement and psychological distress during COVID-19 pandemics: The impact of death experience on mental health RuiM.Joaquim, et al;

Mandatory

1. 3aa911a839d7ae9492be91ad9983fcc35138.pdf
2. 3B - Greg Belenky.pdf
3. FRMSc_Dublin_September-205_release-copy.pdf
4. managing_traumatic_stress_72dpi_rgb.pdf
5. Mellbye-Carter-Seafarers'-depression-and-suicide-2017-2.pdf
6. Social_Isolation_Article_PDF.pdf