SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

(An Autonomous Institution)

TVR NAGAR, ARUPPUKOTTAI ROAD, MADURAI – 625 022

ANNUAL QUALITY ASSURANCE REPORT

2020 - 21

Teaching Plan

B.Sc., Fire and Industrial Safety

2020 - 21

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE, MADURAI
DEPARTMENT OF FIRE & INDUSTRIAL SAFETY
ODD SEMESTER
Academic Year: 2020-21/I Sem (Odd) **Class: B.Sc-I(F&IS)**

S.NO	Course Name	Staff Name
1	Hindi –I	Mrs.M.Neela
2	General English –I	Mr.V.VSundaram
3	Safety Management System	Mr. Brameshwaran
4	Basic Electrical & Electronics Engineering	Mr.B.Satheeshprabu
5	Basic Civil and Mechanical Engineering	Mr.Dhamodharan.V
6	Allied: Probability and Statistics	Mr.Sivasubramaniam

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme : Animation,CS,MHS,FoodScience,Fire and Safety,Viscom and Networking
Title of the Course : Hindi III **Course Code: 19UH301**
Year / Semester: II YEAR/ III SEMESTER **Section:** **Total No. of Students:**
No.Of Credits: 3 **Total no. of Contact hours: 45**

S. No	Topic	Reference / Text Book Page No.	Teaching Aids	Mode of Delivery No. of Hours			Cummulative Hours
				L	T	P	
Unit I							
1	बहुकीविदा (bahookivida)	**R 1-3 to 9 / T1-38 to 43**	BB	2	1		**9**
2	अन्धेरनगरी (andhearnagaree)	**R 1-9 to 18 / T1 -43 to 50**	BB	2	1		

Unit II							
1	कबीरकेदोहे (kabeerkedohe)	**R 1-18,19 / T2-16**	BB	2	1		**9**
2	तुलसीकेदोहे (tulsikedohe)	**R 1-19,20 / T2-17**	BB	2	1		
3	रहीमकेदोहे (rahimkedohe)	**R 1-21,22/ T1-18**	BB	2	1		
3	दर्जी और हाथी - Dharjiaurhaathi	**R 1-13/ T1-116&117**	BB	2	1		
Unit III							

1	संज्ञाकीपरिभाषाऔरभेद (sangya-pribhashaaurbeadh)	**R 1-22,23 / T1-9**	BB	2	1		**9**
2	सर्वनामकीपरिभाषाऔरभेद (sarvanaam-pribhashaaurbeadh)	**R 1-23,24 / T3-17 & 18**	BB	2	1		
3	विशेषणकीपरिभाषाऔरभेद (visheshan-pribhashaaurbeadh)	**R 1-24,25/ T3-19 & 20**	BB	2	1		
Unit IV							
1	बीजक (Invoice)	**R 1-26 to 28 / T4-67 & 68**	**BB**	2	1		**9**

2	परिचय देना – Self introduction(अपना परिचय देना, अपनेपरिवार औरअपने शहर के बारे में परिचय देना)	**R 1-28 to 33 / T4-223**	**BB**	2	1		

3	दूरभाष में बातचीत – Telephone conversation (Ordering food, medicine and some things over phone for home delivery, भोजनका आदेशऔर कुछ सामान, दवाईमँगवाने का आदेश)	**R 1-33 ,34 / T4-224**	**BB**	2	1		
Unit V							

1	संकेतों के सहारे लिखना Hints developing	**R 1- 34 to 37**	**BB**	2	**1**		**9**
2	नारे लिखना– slogan writing	**R 1- 37 to 40**	**BB**	2	**1**		

* L - Lecture T - Tutorial (Problems / Example Programs / Revision Classes) P - Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open educational resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDo), and Google Slides(GS) and Whiteboards(WB),Wikipedia (W) any other tools may also be included.
[Mark the abbreviation in the teaching aids column]

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	Module	Lecture	Planned Topics	Date	Time	Total No of Hours Allotted
1	1	Lecture1	Translation			
2	2	Lecture2				
3	3	Lecture3				
4	4	Lecture 4				

Gaps in the Syllabus –To meet Industrial Requirements

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1	Framing words and sentences	Assignment		3
2		Seminar		
3		Peer teaching		
4	NA	Industrial Visit	NA	NA

Resources [Citation style differs for each Programme, Kindly use the citation style (APA, MLA etc) applicable for your domain. This has been advised by the University Nominees and Experts last time]

Reference Book	
R1	A Complied book, covering all the topics of the syllabus prepared by the Department of Hindi.

Text Books	
T1	प्रशनोत्तरसहितराष्ट्रभाषापाठ्यसामग्री | दक्षिणभारतहिन्दीप्रचारसभा, मद्रास | हिन्दीप्रचारप्रेस, त्यागरायनगर, चेन्नै:17, पहलासंस्करण - मई,2016: दूसरासंस्करण - मार्च,2017: मुद्रक |
T2	प्रशनोत्तरसहितराष्ट्रभाषापाठ्यसामग्री |दक्षिणभारतहिन्दीप्रचारसभा, मद्रास |हिन्दीप्रचारप्रेसत्यागरायनगर, चेन्नै:17,पहलासंस्करण - मई,2016:दूसरासंस्करण – मार्च,2017: मुद्रक |
T3	हिन्दीव्याकरणप्रवेशिका -1दक्षिणभारतहिन्दीप्रचारसभा, मद्रास |हिन्दीप्रचारप्रेस ,चेन्नै:17,पहलासंस्करण - सितम्बर,2011: दूसरासंस्करण - नवम्बर,2017: मुद्रक |
T4	Dr.K.M.Chandra Mohan. Hindi Vatayan. ViswavidhalayaPrakasanChowk, Varanasi-221001:Print. 67 &68
Web Resources	
W1	http://hindi.swiftutors.com/hindi-self-introduction.html
W2	http://www.linguanaut.com/english_hindi.htm#ixzz6JaMa5AJR
E – Books /Library INFLIBNET RESOURCES	
E1	
E2	
E3	
E4	

Topics beyond Syllabus

M1	NA
M2	NA
M3	NA

PORTION FOR EXAMINATION			
Sl. No.	**Mode**	**Proposed Portions to be Covered**	**Proportion (Portion) in Percentage (to be decided by the Department)**
1	SLIP / CLASS TEST	UNIT - I	15%
2	I INTERNAL	UNIT - I, II, V	50%
3	II INTERNAL	UNIT - III, IV, V	50%
4	Summative Examination	ALL 5 UNITS	100%

ASSESSMENT METHODOLOGY – DIRECT

	Yes/No	**Yes/No**	**Yes/No**	**Yes/No**	**Yes/No**
Internal Examination	Yes	Yes	Yes	Yes	Yes
Assignment	Yes	Yes	Yes	Yes	Yes
Slip Test / Class Test	Yes	Yes	Yes	Yes	Yes
Project	No	No	No	No	No
Summative Examination	No	No	No	No	No

Assessment Indirect			
	Yes/No	**Yes/No**	**Yes/No**
Assessment of Course Outcome by Student Feedback	**Yes**		
Feedback from Alumni	**No**		
Feedback from Educational Experts	**Yes**		
Feedback from Parents	**No**		

Prepared by

Designation	**Name**	**Signature**	**Date**
Course Coordinator / In-charges	**Mrs.S.Neela**		
Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)			

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	**Mrs.S.Neela**			
Dean Academics	**Dr.S.Priya**			

Principal	**Dr.R.Sujatha**			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme : B.Sc. (MCHM, CS, NW, Viscom, Animation, Fire & Industrial Safety, Food Science &Processing Management)							
Title of the Course : General English- I				**Course Code: 20UGE102**			
Year / Semester: I YEAR/ I SEMESTER			**Section:**	**Total No. of Students:**			
No. of Credits: 3				**Total no. of Contact hours: 45**			
Course Teacher (s) Name : Mrs.R.SuganthiHepzibha, Dr.S.priya, Ms.T.S.Sridevi, Mr.C.Senthilkumar and Mr.V.V.Sundaram							
S. No	**Topic**	**Reference / text Book Page No.**	**Teaching Aids**	**Mode of Delivery No. of Hours**			**Cummulative Hours**
		T 1 / R 04		**L**	**T**	**P**	
Unit I							
1	Kinds of Sentences	**R1-1 / R 06,**	BB	2	1		**9**

		03					
2	Parts of Speech	**R1-3 / R 06, 03**	BB/PPT/V	2	1		
3	Tenses, Verbs and Modals	**R1-6 / R 06, 03**	BB	2	1		
Unit II							
1	My Financial Career - Stephen Leacock	**R1-12**	**BB/V**	3			**9**
2	Tattered Blanket - Kamala Das	**R1-20**	**BB/V**	3			
3	The Antidote - R.K. Narayan	**R1-25**	**BB/V**	3			
Unit III							
1	Etymology	**R1-31**	**PPT**	2	1		**9**
2	Synonyms& Antonyms	**R1-33**	**PPT**	2	1		
3	Homophones & Homonyms	**R1-35**	**PPT**	2	1		
Unit IV							
1	Sonnet 18	**R1-38 / R 04**	**BB/PPT**	3			**9**
2	Sonnet 55	**R1-42 / R 04**	**BB/PPT**	3			
3	Sonnet 116	**R1-45 / R 04**	**BB/PPT**	3			

Unit V							
1	Letter Writing (Formal and Informal)	**R1-47 / R 06, 05**	**BB/WS**	2	**1**		**9**
2	E-mail Writing (Formal and Informal)	**R1-51 / R 06, 05**	**BB/WS**	2	**1**		
3	Reading Comprehension	**R1-54 / R 06, 05**	**BB/WS**	2	**1**		

* L - Lecture T - Tutorial (Problems / Example Programs / Revision Classes) P - Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open educational resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDo), and Google Slides(GS) and Whiteboards(WB),Wikipedia (W) any other tools may also be included.
[Mark the abbreviation in the teaching aids column]

Text Books	
T1	General English-I, A Complied book, covering all the topics of the syllabus prepared by the Department of English.

Reference Books	
R1	Dr.K.Alex. **Soft Skills.** New Delhi: S.Chand& Company Ltd, 1997. Print.
R2	Dr. Gupta C.B. **Business Correspondence & Reporting -Business Law, Business Correspondence & Reporting (CA-Foundation).** New Delhi: Taxmann, 2018. Print.
R3	G.RadhakrishnaPillai. **Emerald English Grammar and Composition**. Bangalore: Emerald Publisher, 1998. Print.
R4	Paul Joseph Margaret. **Bequest of Wings.** USA: Macmillan India Limited, 1994. Print.
R5	SrivasanHema. **Communication Skills**. Bangalore: Frank Brothers & Co. Ltd, 2004. Print.
R6	Wren & Martin. **High School English Grammar & Composition.** India: S.Chand& Company Ltd, 1995. Print.
Web Resources	
W1	https://www.enotes.com/topics/my-financial-career
W2	http://tatteredblanket.blogspot.com/
W3	https://www.poetryfoundation.org/poems/45087/sonnet-18-shall-i-compare-thee-to-a-summers-day
W4	https://www.poetryfoundation.org/poems/46455/sonnet-55-not-marble-nor-the-gilded-monuments
W5	https://www.sparknotes.com/nofear/shakespeare/sonnets/sonnet_116/
E – Books /Library INFLIBNET RESOURCES	
E1	https://nlist.inflibnet.ac.in/search/Record/EBC483375
E2	https://nlist.inflibnet.ac.in/search/Record/EBC481114
E3	https://nlist.inflibnet.ac.in/search/Record/EBC1864716

Gaps in the Syllabus				
SL. NO	**Name of the Topic**	**PROPOSED ACTION**	**No of Hours Allotted**	**Hours with in the Time Table (HT) /**

				Hours beyond the Time Table (HB)
1	Essay Writing on Subjective Topics	Assignment		3
2	Extempore	Seminar	3	
3	On Any Modules	Peer teaching	2	
4	NA	Industrial Visit	NA	NA

Proposed Actions can be Assignments , Seminars, Peer Teaching, Industrial Visit , Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	**Module**	**Lecture**	**Planned Topics**	**Date**	**Time**	**Total No of Hours Allotted**
1	1	Lecture 1	Newspaper/Article reading			
2	2	Lecture 2	Collecting & Reporting News			
3	3	Lecture 3	Learning a New Word Everyday			
4	4	Lecture 4	Public			

		Speaking			

PORTION FOR EXAMINATION			
Sl. No.	**Mode**	**Proposed Portions to be Covered**	**Proportion (Portion) in Percentage (to be decided by the Department)**
1	SLIP / CLASS TEST	UNIT - I	15%
2	I INTERNAL	UNIT - I, II, V	50%
3	II INTERNAL	UNIT - III, IV, V	50%
4	Summative Examination	ALL 5 UNITS	100%

Prepared by

Designation	**Name**	**Signature**	**Date**
Course Coordinator / In-charges	**Mr.C.Senthilkumar**		
Course Coordinator / In-charges	**Mr.V.V.Sundaram**		
Module Coordinator	**Mrs.R.SuganthiHepzibha**		

Approved by

	Name	Signature	Date
HoD	**Mrs.R.SuganthiHepzibha**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Program :B.Sc (Fire and Industrial Safety)

Title of the Course :Safety Management System **Course Code :**

Year / Semester : I **Section:** **Total No. of Students :8**

No of Credits : **Total No. of Contact Hours : 50Course Teacher (s)**

Name R.Brameshwaran **Corresponding lab Paper : No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT – I SAFETY MANAGEMENT SYSTEM IN INDIA							
1.	Introduction	T 12 / R 04					

2.	**What is Safety management System**	**Web:1**		**1**			**1**
3.	**Roles and responsibility of Safety officer in India**	**Refer Factory act**		**1**			**1**
4.	**Appointment of Safety officer**	**Refer Factory act**		**1**			**1**
5.	**History of safety movement**	**Web:3-5**		**1**	**1**		**2**
6.	**Evolution of modern safety concept**	**Web-6-8**		**1**			**1**
7.	**Safety line and staff function**	**Wiki**			**1**		**1**
8.	**Labor structure and constitutional provisions**	Wiki		**1**			**1**
9.	**Industry wise labor distribution and government role.**	Wiki		**1**			**1**
UNIT – IIFUNDAMENTAL CONCEPTS AND TERMS							
10.	**Why Safety – accident injuries & losses – Accidents, Incidents and accidents,**	**Wiki**		**1**			**1**
11.	**incident recall technique**	**Wiki**		**1**			**1**

12.	**type of losses – Unsafe act and conditions**	**Wiki**		**1**			**1**
13.	**types of injury- Domino theory**	**R448**		**1**			**1**
14.	**multi factor theory – Human Factor theory**	**R449**		**1**			**1**
15.	**Accident Incident Theory Energy theory**	**R451**		**1**			**1**
16.	**negative errors in management system**	**R458**		**1**			**1**
17.	**single factors theories**	**R458**		**1**			**1**
18.	**Problem based on Accident Incident and Near miss.**	**News events**		**1**	**1**		**2**
UNIT – III SAFETY MANAGEMENT SYSTEM MODELS							
19.	**What is a safety Management System**	**Wlki**		**1**			**1**
20.	**ILO model**	**ILO web site**		**2**			**2**
21.	**Frame work project model-**	**ILO Web site**		**1**			**1**
22.	**PDCA**	**OHSA web**		**1**			**1**

23.	**OHSAS model**	**OHSA web**		**1**	**1**		**2**
24.	**Safety Climate model**	**Wiki**		**1**			**1**
25.	**safety management system model**	**Wiki**		**1**			**1**
26.	**safety culture**	**Wiki**		**1**			**1**
UNIT – IVELEMENT OF SAFETY MANAGEMENT SYSTEM							
27.	**Management commitment- policy and objectives**	**R611**		**1**			**1**
28.	**Training and Development-**	**R612**		**1**			**1**
29.	**In house safety rules**	**R613**		**1**			**1**
30.	**Safety plans and Program**	**R615**		**1**			**1**
31.	**Hazard identification and risk analysis**	**R625**		**1**			**1**
32.	**Accident incident Investigation**	**R447**		**1**			**1**
33.	**Accident Incident Report Form**	**R448**		**1**			**1**
34.	**Emergency preparedness**	**OHSA web site**		**1**			**1**
35.	**selection and control of subcontractors**	**ILO web**		**1**			**1**

		site					
36.	Promotion of safety awareness in work place	ILO web site		1			1
UNIT – V SAFETY AUDIT							
37.	Components of safety audit, types of audit	R611		1			1
38.	audit methodology	R612		1			1
39.	non-conformity reporting (NCR), audit checklist and report	R613		1			1
40.	review of inspection	R615		1			1
41.	remarks by government agencies consultants, experts	R625		1			1
42.	perusal of accident and safety records	R611		1			1
43.	formats – implementation of audit indication	OSHA web		1			1
44.	liaison with departments to ensure co-ordination	OSHA web		1			1
45.	check list	Safety prof web		1			1

		site					
46.	**identification of unsafe acts of workers and unsafe conditions in the shop floor.**	**HSE web**		**1**			**1**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	Module	Lecture	Planned Topics	Date	Time	Total No of Hours Allotted
1	1	Lecture1	Safety Management software			
2		Lecture2	Job ethics for safety officer			
3	2	Lecture1				
4		Lecture 2				

Gaps in the Syllabus –To meet Industrial Requirements

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Accident Investigation checklist/Near miss check list	Assignment	5	HB
2	Difference between Accident ,Incident and Near miss with example	Seminar	2	HB
3	International safety Management	Peer teaching	2	HB
4		Industrial Visit		

Reference Books

R1	John Ridley, Safety at Work, Butterworth & Co., London, 1983.
R2	Heinrich H.W. “Industrial Accident Prevention” McGraw-Hill Company, New York, 1980.

R3	John Ridley, “Safety at Work”, Butterworth & Co., London, 1983
R4	Accident Prevention Manual for Industrial Operations”, N.S.C.Chicago, 1982
R5	Safety Professionals Reference and study guide “W.DAVID YATES”2015
R6	The Indian Factories Act 2005

Web Resources

W1	**www.your pedia.com**
W2	**www.OSHA.Com**
W3	
W4	

E – Books /Library INFLIBNET RESOURCES

E1	Safety Professionals Reference and study guide "W.DAVID YATES"2015
E2	
E3	
E4	

Topics beyond Syllabus

Module 1	
M2	
M3	
M4	

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage(to be decided by the

			Department)
	SLIP / CLASS TEST	UNIT-1	20
	I INTERNAL	UNIT - I,II,	40
	II INTERNAL	UNIT - III,IV,V	60
	Summative Examination	ALL FIVE UNITS	100

ASSESSMENT METHODOLOGY –DIRECT

	Yes/No	**Yes/No**	**Yes/No**	**Yes/No**	**Yes/No**
Internal Examination					
Assignment					
Slip Test /					

Class Test					
Project					
Summative Examination					

Assessment Indirect

	Yes/No	**Yes/No**	**Yes/No**
Assessment of Course Outcome by Student Feedback			
Feedback			

from Alumni			
Feedback from Educational Experts			
Feedback from Parents			

Designation	**Prepared by**		
	Name	**Signature**	**Date**
Course Coordinator / In-charge			
Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)			

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD				
Dean Academics				
Principal				

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme: Fire & Industrial Safety

Title of the Course : Basic Civil and Mechanical Engineering **Course Code : 20FS105**

Year / Semester : I / I **Section: B.Sc** **Total No. of Students : 08**

No of Credits : 4 **Total No. of Contact Hours : 4Course Teacher (s)**

Name : V.Dhamotharan **Corresponding lab Paper : No**

Sl. No	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT – I - SCOPE OF CIVIL AND MECHANICAL ENGINEERING							
1.	Civil engineering contribution to the welfare society	W1-5, 6		1			1

2.	**Structural engineering**	**W1-10, 11**		**1**			**2**
3.	**Construction ,geo technical environment**	**W1-9**		**1**			**3**
4.	**Transportation & welfare resources**	**W1-1, 2, 3, 4**		**1**			**4**
5.	**Mechanical engineering contribution to the welfare society?**	**W1-62**			**1**		**5**
6.	**Production engineering**	**W1-63**		**1**			**6**
7.	**Automobile engineering**	**W1-131,132**		**1**			**7**
8.	**Energy engineering**	**W1-74,75**		**1**			**8**
9.	**Interdisciplinary concepts**	**W1-12,13**		**1**			**9**
10.							
UNIT – II – SURVEYING & CIVIL ENGINEERING MATERIALS							

11.	**Surveying objects**	**W2-55**		**1**			**10**
12.	**Classification of surveying**	**W2-2, 3**		**1**			**11**
13.	**Surveying principles**	**W2-4, 5**		**1**			**12**
14.	**Measurements of distance**	**W2-54**		**1**			**13**
15.	**Angles , leveling**	**W2-35, 36**		**1**			**14**
16.	**Determination of areas, cantos and examples**	**W2-77**		**1**			**15**
17.	**Qualities of good bricks and stones**	**W2-147**		**1**			**16**
18.	**Qualities of good cement, concrete , steel**	**W2-224**		**1**			**17**
19.	**Uses of timber and modern materials**	**W2-18**			**1**		**18**
20.							
UNIT – III – Building components & structure							
21.	**Foundation and types**	**W3-6,**		**1**			**19**

		7					
22.	**bearing capacity & settlement**	**W3-13**		**1**			**20**
23.	**Requirement of good foundations**	**W3-18,19**		**1**			**21**
24.	**Brick masonry**	**W3-46**			**1**		**22**
25.	**Stone masonry**	**W3-47**		**1**			**23**
26.	**Beam columns, lintels and roofing**	**W3-56**		**1**			**24**
27.	**Flooring ,plastering, floor area, carpet area & floor space index**	**W3-57**		**1**			**25**
28.	**Types of bridges &dams , water supply & sources of water and quality of water**	**W3-76**		**1**			**26**
29.	**Rain water harvesting**	**W3-96**			**1**		**27**
30.	**Highway and railway**						
UNIT – IV – POWER PLANT ENGINEERING							
31.	**Working principles of steam power plant**	**W4-2, 3**		**1**			**28**

32.	**working principles of gas turbines**	**W4-10, 11**		**1**			**29**
33.	**Advantages of gas turbines**	**W4-57, 58**		**1**			**30**
34.	**Working principles of diesel power plant**	**W4- 65**		**1**			**31**
35.	**Layout of hydroelectric power plant**	**W4-66**		**1**			**32**
36.	**Advantage of hydroelectric power plant**	**W4-88, 89**		**1**			**33**
37.	**Working principles of nuclear power plants**	**W4-124,125**		**1**			**34**
38.	**Advantages of nuclear power plant**	**W4-174,175**		**1**			**35**
39.	**Demerits of nuclear power plant**	**W4-135**			**1**		**36**
40.							

UNIT – V – IC ENGINES							
41.	**Classification of IC engines**	**W5-4, 5**		**1**			**37**
42.	**Main components of IC engines**	**W5-15**		**1**			**38**
43.	**Working of a four stroke petrol engine**	**W5-32, 33, 34**		**1**			**39**
44.	**Working of a four stroke diesel engine**	**W5- 55**		**1**			**40**
45.	**Working of a two stroke petrol engine**	**W5- 65**			**1**		**41**
46.	**Working of a two stroke diesel engine**	**W5- 88**		**1**			**42**
47.	**Difference between four stroke and two engine**	**W5-115**		**1**			**43**
48.	**Difference between petrol engines and diesel engines**	**W5-166,167**		**1**			**44**
49.							
50.							

* L - Lecture T - Tutorial (Problems / Example Programs / Revision Classes) P - Practical

* LCD/PPT/ Black Board (BB) /Worksheet(WS) /Video (V) / Group Discussion (GD) / Blended &Flipped (BF) /Open educational resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDo), and Google Slides(GS) and Whiteboards(WB),Wikipedia (W) any other tools may also be included.

[Mark the abbreviation in the teaching aids column]

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	Module	Lecture	Planned Topics	Date	Time	Total No of Hours Allotted
1	1	Lecture1				
2		Lecture2				
3	2	Lecture1				
4		Lecture 2				

Gaps in the Syllabus –To meet Industrial Requirements

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.		Assignment		
		Seminar		
		Peer teaching		
		Industrial Visit		

Resources [Citation style differs for each Programme, Kindly use the citation style (APA, MLA etc) applicable for your domain. This has been advised by the University Nominees and Experts last time]

Text Books

T1	
T2	
T3	

T4	

Reference Books

R1	
R2	
R3	
R4	

Web Resources

W1	Civil engineering contribution, Lehigh university civil and environmental engineering
W2	Ferris state university, SIU carbondale civil and environmental engineering, civil engineering
W3	Journal of building materials and structures, concrete civil
W4	International journal of energy engineering, power engineering,
W5	Internal combustion engine & gas turbines – dularihansdah

E – Books /Library INFLIBNET RESOURCES

E1	
E2	www.michigan.gov/miosha
E3	
E4	

Topics beyond Syllabus

Module 1	
M2	
M3	
M4	

PORTION FOR EXAMINATION

Sl.No.	Mode	Proposed Portions to be	Proportion (Portion) in

		Covered	Percentage(to be decided by the Department)
	SLIP / CLASS TEST	Unit/Portion to be decided by the Course Teacher and the HoD	
	I INTERNAL	UNIT - I,II,V	
	II INTERNAL	UNIT - III,IV,V	
	Summative Examination	ALL FIVE UNITS	

ASSESSMENT METHODOLOGY –DIRECT

	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Internal Examination	yes	Yes	Yes	Yes	yes

Assignment	yes	Yes	yes	yes	yes
Slip Test / Class Test					
Project					
Summative Examination					

Assessment Indirect

	Yes/No	**Yes/No**	**Yes/No**
Assessment of Course Outcome by Student Feedback			
Feedback			

from Alumni			
Feedback from Educational Experts			
Feedback from Parents			

Designation	**Prepared by**		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**V.DHAMOTHARAN**		
Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)			

Approved by			
	Name	**Signature**	**Date**
HoD	**I.VIVEK RAMKUMAR**		
Dean Academics	**Dr.S.PRIYA**		
Principal	**Dr.R. SUJATHA**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme: Fire and Industrial Safety **Programme Code : FS1061**

Title of the Course : Basics of Electrical and Electronics Engineering **Course Code :20FS104**

Year / Semester : II / III **Section:** **Total No. of Students : 08**

No of Credits : 3 **Total No. of Contact Hours : 4**

Course Teacher (s) Name : B.Satheeshprabu **Corresponding lab Paper: No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT I-ELECTRICAL CIRCUITS							

1.	Theory of Electricity	W1		1			1
2.	Theory of Electricity	W1		1			2
3.	Symbols of Electrical Machines	W1		1			3
4.	Basic principles involved in power generation, transmission and use	W1		1			4
5.	Basic principles involved in power generation, transmission and use	W1		1			5
6.	Ohms Law	W1		1			6
7.	Steady state solution of DC circuits	W4		1			7
8.	Steady state solution of DC circuits	W4		1			8
9.	Electrical Safety for Children.	W3		1			9
	UNIT II-AC CIRCUITS						
10.	Study about Voltage, Current, Capacitance and Resistance	W1		1			10
11.	Introduction to AC circuits(Series, Parallel, Open, Short)	W1		1			11
12.	waveforms and RMS value	W1		1			12
13.	power and power factor,	W1		1			13
14.	singlephase balanced circuits	W4		1			14

15.	three-phase balanced circuits	W4		1			15
16.	housing wiring	W3		1			16
17.	industrial wiring	W3		1			17
18.	\Materials of wiring.	W3		1			18
	UNIT III- ELECTRICAL MACHINES						
19.	Principles of operation and characteristics of AC machines	W2		1			19
20.	Transformers (single and three phases)	W2		1			20
21.	Transformers (single and three phases)	W2		1			21
22.	three-phase and single–phase induction motors – (op.Principles)	W2		1			22
23.	three-phase and single–phase induction motors – (op.Principles)	W2		1			23
24.	Instrument transformer (CT and PT)	W2		1			24
25.	Ammeter and Voltmeter – multimeters	W2		1			25
26.	Wattmeter – energy meter – megger-	W2		1			26
27.	Introduction to transducers: pressure, temperature, position, electrical measurements**.**	W1		1			27
	UNIT IV- ELECTRONIC DEVICES & CIRCUITS						

28.	Types of Materials –Silicon & Germanium- N type and P type materials	W5		1			28
29.	PN Junction –Forwardand Reverse Bias	W5		1			29
30.	Semiconductor Diodes	W5		1			30
31.	Bipolar Junction Transistor –Characteristics	W5		1			31
32.	transistor as an Amplifier	W5		1			32
33.	Introduction to operational Amplifier	W5		1			33
34.	InvertingAmplifier	W5		1			34
35.	Non Inverting Amplifier	W5		1			35
36.	Rectifiers.	W5		1			36
UNIT V -STATIC ELECTRICITY							
37.	An Introduction	W1		1			37
38.	Generation of Static Electricity	W1		1			38
39.	Generation of Static Electricity	W1		1			39
40.	Electrostatic Charging	W1		1			40
41.	Electrostatic Discharging	W1		1			41

42.	Hazards of Static Electricity	W1		1			42
43.	Methods for control of Static Electricity	W1		1			43
44.	Methods for control of Static Electricity	W1		1			44
45.	Earthing Bonding.	W1		1			45
TOTAL HOURS							45

Web Resources

W1	www.OSHA.gov
W2	www.javatpoint.com
W3	www.oshatrain.org/courses/pdf/2009-113.pdf
W4	www.tutorialpoint.com
W5	www.electronics-tutorials.ws/diode/diode_3.html

E – Books /Library INFLIBNET RESOURCES

E1	Basic Electrical Installation Work 2357 Edition, Trevor Linsley
E2	Basic Electrical & Electronics Engineering, R MUTHUSUBRAMANIAN and S. Salivahanan

Gaps in the Syllabus

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	DC Generator Working Principle	Lecture	01	**Hours beyond the Time Table (HB)**
2.	Thyristor devices	Lecture	01	**Hours beyond the Time Table (HB)**

* ***Proposed Actions can be Assignments, Seminars, Peer teaching, and Industrial Visit, Others (if any)***

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	III	Lecture	Online	Uninterrupted Power Supply	1
2	V	Lecture	Online	Battery Charging and Discharging	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit - 1	20%
2.	I INTERNAL	Unit- I,II, III (upto three-phase and single–phase induction motors)	50%
3.	II INTERNAL	Unit– III (from Instrument transformer) ,IV,V	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by		
	Name	Signature	Date
Course Coordinator / In-charge	Mr.B.Satheeshprabu		
Programme Coordinator	Mr.A.Jaiveerkumar		

Approved by			
	Name	Signature	Date

HoD	**Mr. I. VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Suthaja**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE
COURSE PLAN – 2020– 2021 (ODD SEMESTER)

Name of the Programme : Fire & Industrial Safety
Programme Code : FS1061
Title of the Course : Probability and Statistics

Course Code : 20FS106
Total No. of Students : 09

Year / Semester : I / I
No of Credits : 5

Total No. of Contact Hours : 5

Course Teacher Name : Mr. R. Sivasubramanian				Corresponding Lab Paper : ~~Yes~~ / No			
Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT - I							
1	Primary and Secondary data	T1-27	BB/ WB/ OER	1	1	0	2
2	Methods of data collection	T1-127	BB/ WB/ OER	1	1	0	4
3	Tabulation of data	T1-50	BB/ WB/ OER	2	1	0	7
4	Graphs and charts, Frequency distributions	T1-100	BB/ WB/ OER	3	1	0	11
5	Diagrammatic presentation of frequency distributions	T1-81	BB/ WB/ OER	3	1	0	15
UNIT - II							
6	Common measures of central tendency	T1-124	BB/ WB/ OER	1	0	0	1
7	Arithmetic mean,median and mode;	T1-126	BB/ WB/ OER	2	1	0	4
8	Partition values- quartiles, deciles, percentiles	T1-156	BB/ WB/ OER	2	1	0	7
9	Measures of Dispersion- Common measures dispersion	T1-241	BB/ WB/ OER	2	1	0	10
10	range, quartiledeviations,	T1-244	BB/ WB/ OER	1	1	0	12

11	mean deviation and standard deviation.	T1-250	BB/ WB/ OER	2	1	0	15
UNIT - III							
12	Simple correlation analysis	T1-396	BB/ WB/ OER	2	1	0	3
13	Karl Pearson's Co-efficient of Correlation	T1-399	BB/ WB/ OER	2	1	0	6
14	Spearman's Rank Correlation	T1-417	BB/ WB/ OER	2	1	0	9
15	Introduction to Regression	T1-465	BB/ WB/ OER	1	0	0	10
16	Difference between correlation and Regression	T1-467	BB/ WB/ OER	1	0	0	11
17	Regression Equation X on Y and Y on X (Simple problems).	T1-469	BB/ WB/ OER	3	1	0	15
UNIT - IV							
18	Random Experiment – Mathematical definition of probability	T2-1	BB/ WB/ OER	1	0	0	1
19	Statistical definition of probability	T2-2	BB/ WB/ OER	1	0	0	2
20	Axiomatic definition of Probability	T2-2	BB/ WB/ OER	1	1	0	4
21	Conditional Probabilities	T2-4	BB/ WB/ OER	2	1	0	7
22	Independent Events	T2-5	BB/ WB/ OER	3	1	0	11
23	Bayes Theorem.	T2-17	BB/ WB/ OER	3	1	0	15
UNIT - V							
24	Introduction – Discrete Random variables	T2-33	BB/ WB/ OER	1	0	0	1
25	The Bernoulli Random Variable	T2-35	BB/ WB/ OER	3	1	0	5
26	The Geometric Random Variable	T2-36	BB/ WB/ OER	3	2	0	10
27	The Poisson Random Variable.	T2-36	BB/ WB/ OER	3	2	0	15
Total							75

* L - Lecture T - Tutorial (Problems / Example Programs / Revision Classes) P - Practical
* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Text Book

T1	R.S.N.Pillai ,Bagavathy (8th Edition), Statistics Theory and Practice, S.Chand Publishers
T2	T. Veerarajan,(2017, 3rd edition) Probability, Statistics and random Processes, McGrawHill Education

Reference Books	
R1	Arumugam, Issac,(2009) Statistics,New Gamma publishing House, Thiruchendur road, Palayamkottai - 627 002.
R2	D.K. Sancheti&V.K. Kapoor, Statistics, (7th Edition), Sultan Chand& sons, New Delhi.

Web Resources

W	https://mathworld.wolfram.com/

E – Books /Library INFLIBNET RESOURCES	
E	https://www.statisticshowto.com/statistics-basics/.

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)							
SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted		

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1	I INTERNAL	Unit - I, II, III (50%)	50%

2	II INTERNAL	Unit – III (50%) , IV, V	50%
3	End Semester Examination	Unit I to V	100%

Prepared by

Designation		Name	Signature	Date
Course Coordinator / In-charge		Mr. R. Sivasubramanian		
Programme Coordinator				

Approved by

Designation	Name	Signature	Date
HoD	Mr. R. Sivasubramanian		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE, MADURAI DEPARTMENT OF FIRE & INDUSTRIAL SAFETY

Academic Year: 2020-21/IV Sem (EVEN) Class: B.Sc-II(F&IS)

S.NO	Course Code	Course	Staff Name	Dept

1	19UH401	Hindi IV	Mrs.M.Neela	Hindi
2	19UGE402	English IV	Mr.V.V.Sundaram	English
3	19FS403	Safety legislations and Standards	Mr.A.Jaiveer Kumar	F & IS
4	19FS404	Transport safety	Mr.I.VivekRamkumar	F & IS
5	19FS405	Occupational Health and Hygiene	Mr.V.Dhamotharan	F & IS
6	19FS406	**Elective** Safety in Oil and Gas Industries	Mr.P.Navaneethakrishnan	F & IS
7	19UBT410/ 19UBT411	Non Major Elective: Basic Tamil/Advanced Tamil	Mrs.H.Geetha/ Ms.RS.Sailakshmi	Tamil
8	19FS410	Industrial Plant Layout & Work Shop Safety lab	Mr.B.Satheeshprabu	F & IS
9	19FS411	Scaffolding & Work at height lab	Mr.V.Dhamotharan	F & IS

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme :	**B.Sc Animation, Viscom, CS, Networking, Food Science & Processing, Fire & Industrial Safety and Marine Catering Hotel Management,B.Com B&I,Honors and ACCA**		
Course Name :	**HindiIV**	**Course Code :**	**19UH401**
Year / Semester	**II / IV**	**Section**	
Total No. of Students		**No. of Credits**	**3**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**45**
Course Teacher Name	**Mrs.S.Neela**		

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I**हिन्दीसाहित्यका इतिहास**History of Ancient and medievalHindi literature							
1	आदिकाल**Adhikaal - Prithivirajraso.**	**CM-02**	**BB / PPT**	**3**	**2**		**5**
2	भक्तिकालBhakthikaal – NirgunBakthi and	**CM-7**	**BB / PPT**	**2**	**2**		**4**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
	SagunBakthi						
UNIT – II - **नैतिक कविताएं**(Ethical poem)							
3	कठ-पुतली है या जीवन है | (kttputhleehaiyajeevanhai)	**CM-9**	**BB / PPT**	**1**	**1**		**2**
4	माँ (Maa)	**CM-10**	**BB / PPT**	**1**	**1**		**2**
5	एक आशीर्वाद (Eakhaasheervadh)	**CM-11**	**BB / PPT**	**1**	**1**		**2**
UNIT – III - **व्याकरण**(Grammar)							
9	क्रियाverb	**CM-13**	**BB / PPT**	**3**	**1**		**4**
10	संबंधबोधकsambandhbodhak	**CM-14**	**BB / PPT**	**3**	**1**		**4**
11	समुच्चयबोधकsamuchayabodhak	**CM-15**	**BB / PPT**	**2**	**1**		**3**
UNIT – IV - **पर्यटन- Tourism**							
12	**रामेश्वरम** –Rameshwaram	**CM-16**	**BB / PPT**	**1**	**1**		**2**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
13	ताजमहल – The TajMahal	**CM-17**	**BB / PPT**	**1**	**1**		2
14	मदुरै - Madurai	**CM-17**	**BB / PPT**	**1**	**1**		2
15	श्रीनगर – Shri Nagar	**CM-18**	**BB / PPT**	**1**	**1**		2
16	कन्याकुमारी - Kanyakumari	**CM-19**	**BB / PPT**	**1**	**1**		2
UNIT – V – **अनुवाद** - Translation							
17	हिन्दी से अंग्रेज़ी में अनुवाद	**CM-15**	**BB / PPT**	**8**	**1**		**9**
TOTAL HOURS							**45**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Course Material

1. **Hindi IV**. A Complied book, covering all the topics of the syllabus prepared by the Department of Hindi.

Reference Books

1. **Webliography**

   http://archive.mu.ac.in/myweb_test/TYBA%20study%20material/Hindi%20Sahitya%20Ka%20Etihas.pdf

2. हिन्दी प्रचार वाहिनी-3दक्षिण भारत हिन्दी प्रचार सभा, मद्रास हिन्दी प्रचार प्रेस त्यागराय नगर, चेन्नै:17पहला संस्करण– अक्तूबर,2018 दूसरा संस्करणजुलई,2019: मुद्रक |Page nos. 14, 15, 18
3. R.Janakaja, Shabari Hindi vyakaran, Shabari Book House,37-First agrahaaram,Salem, First edition -2005:Print
4. Dr.K.M.Chandra Mohan. Hindi Vatayan. ViswavidhalayaPrakasanChowk, Varanasi-221001:Print
5. प्रश्नोत्तर सहित मध्यमा पाठ्य सामग्री, दक्षिण भारत हिन्दी प्रचार सभा, हिन्दी प्रचार प्रेस ,चेन्नै:17,पहला संस्करण- जून, 2018नौवाँ पुनर्मुद्रण – जून , 2019: मुद्रक | Pages no. 177 and 178 (1 to 6)

Gaps in the Syllabus

SL. NO	Name of the Topic	Proposed Action	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Speaking Skill – Self Introduction		2	HT
2.	Reading Skill – Reading Activity		2	HT
3.	Speaking Skill – Assignment		1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, and Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit – IV	20%
2.	I INTERNAL	Unit – I(Chapter 1), IV, V	50%
3.	II INTERNAL	Unit – I (Chapter 2) , II, III	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by		
	Name	Signature	Date
Course Coordinator / In-charge	S.Neela		

Approved by			
	Name	Signature	Date
HoD	S.Neela		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**B.Sc (Fire and Industrial Safety)**	**Programme Code :**	**FS1061**
Course Name :	**Safety Legislation and Standards**	**Course Code :**	**19FS403**
Year / Semester	**2020-2021 / IV**	**Section**	**—**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No.**	**Total No. of Contact Hours**	**50**
Course Teacher Name	**JaiveerKumar.A**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I							
	THE FACTORIES ACT 1948						
1	The Factories Act, 1948 (Amended) and Rules &Tamilnadu Factories Rules 1950	**R1-337**	**PPT**	**1**			**1**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
2	Factories Act	**R1-337**	**PPT**	**1**	**1**		**2**
3	Provisions under the Act and Rules made there under with Amendments Case Laws under the Factories Act.	**R1-337**	**LCD**	**1**			**1**
UNIT – IISOCIAL SECURITY LEGISLATIONS							
1	Workmen's Compensation Act and Rules.	**R1-997**	**PPT**	**1**	**1**		**2**
2	ESI Act and Rules.	**R1-158**	**PPT**	**1**			**1**
3	Contract Labour (Abolition and Regulation) Act.	**R1-131**	**PPT**	**1**			**1**
4	Public Liability Insurance Act.	**R1-870**	**PPT**	**1**			**1**
5	Trade union Act.	**R1-889**	**PPT**	**1**			**1**
6	Child Labour Act.	**R1-1088**	**PPT**	**1**			**1**
UNIT – IIIOTHER ACT AND RULES							
1	Indian Boilers Act, 1923	**R1-1062**	**PPT**	**1**	**1**		**2**
2	Indian Electricity Act, 2000 and Rules,	**W**	**PPT**	**1**			**1**
3	Indian Explosives Act, 1984 and Rules.	**W**	**PPT**	**1**			**1**
4	Petroleum Act and Rules.	**W**	**PPT**	**1**			**1**
5	Gas Cylinders Rules.	**W**	**LCD**	**1**			**1**
6	The Insecticides Act.	**W**	**PPT**	**1**			**1**
7	Pesticides Act &Rules.	**W**	**PPT**	**1**			**1**
8	Radiation Protection Rules.	**R1-**	**PPT**	**1**			**1**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
9	Hazardous Material Transportation Rules	**R1-**	**PPT**	**1**			**1**
10	Static and Mobile (Unfired) Pressure Vessel Rules,1981 as amended in 2000.	**R1-**	**PPT**	**1**			**1**
11	The Dock Workers (Safety, Health & Welfare) Act 1996 and Rules and Regulations	**R1-149**	**LCD**	**1**			**1**
12	BOCW Act.	**R1-82**	**PPT**	**1**	**1**		**2**
UNIT – IVENVIRONMENTAL PROTECTION ACTS							
1	Environmental Protection	**R1-305**	**LCD**	**1**	**1**		**2**
2	Water (Prevention & Control of Pollution) Act, 1974 and Rules.	**R1-919**	**PPT**	**1**	**1**		**2**
3	Air (Prevention & Control of Pollution) Act, 1981 and 1982 and Rules.	**R1-1**	**PPT**	**1**			
4	Motor Vehicles Act, 1988 as amended in 2000.	**R1-731**	**PPT**	**1**			
5	The Central Motor Vehicles Rules, 1989 as amended in 2000.	**R1-731**	**PPT**	**1**			
6	The Tamilnadu Motor Vehicles Rules, 1989 and Transport of Hazardous Goods Rules. -	**R1-731**	**LCD**	**1**			
7	Environment Protection Act, 1986 and Rules.	**R1-**	**PPT**	**1**			
8	Noise Pollution Act, 1998.	**R1-**	**PPT**	**1**			
9	Biomedical Waste,	**R1-**	**PPT**	**1**			
10	Hazardous Waste Management Rules	**R1-**	**PPT**	**1**	**1**		**2**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – V INTERNATIONAL ACTS AND STANDARDS							
1	OSHA Act	**R2**	**PPT**	**1**	**1**		**2**
2	HASAWA Act	**R2**	**PPT**	**1**	**1**		**2**
3	ANSI Act	**R2**	**PPT**	**1**			**1**
4	OHSAS 18001	**R2**	**PPT**	**1**	**1**		**2**
5	ISO 9001	**R2**	**PPT**	**1**			**1**
6	ISO 14001	**R2**	**PPT**	**1**			**1**
7	William Streiger act 1990	**R2**	**LCD**	**1**			**1**
TOTAL HOURS							

Reference Books

1. Mallick, M. R. (2017). *Labour& industrial law manual*. Delhi: Professional Book.
2. *Occupational Safety and Health Act*. (december 29, 1970). Public Law 91-596.

Web Resources

3. https://www.safetyinfo.com
4. https://www.osha.gov

E – Books /Library INFLIBNET RESOURCES

5. https://nlist.inflibnet.ac.in/search/Record/978-1-4020-3776-4
6. https://nlist.inflibnet.ac.in/search/Record/978-3-642-28681-0

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	ANSI	Assignments	1	HB
2.	OHSAS 45001	Assignments	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**3**	**PPT**	**W**	**Motor Vehicles act**	**1**
2	**3**	**PPT**	**W**	**Industrial Disputes**	**1**
3	**2**	**PPT**	**W**	**Weekly Holidays Act**	**1**
4	**2**	**PPT**	**W**	**Child Labour Act**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Gas Cylinders Rules)**	**50%**
3.	**II INTERNAL**	**Unit – III (from The Insecticides Act) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	Jaiveerkumar.A		
Programme Coordinator	Jaiveerkumar.A		

Approved by			
	Name	**Signature**	**Date**
HoD	I.VivekRamkumar		
Dean Academics	Dr.S.Priya		
Principal	Dr. R. Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN 2020–2021 (EVEN SEMESTER)

Name of the Programme	**Fire and Industrial Safety**	**Programme Code**	**FS1061**
Course Name	**Transport Safety**	**Course Code**	**19FS404**
Year / Semester	**II / IV**	**Section**	**B.Sc**
Total No. of Students	**22**	**No. of Credits**	**3**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**4**
Course Teacher Name	**I.VIVEK RAMKUMAR**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – ITRANSPORTATION OF HAZARDOUS GOODS							
7.	Transport emergency card (TREM)			**1**			**1**
8.	Driver training	**R1-401**		**1**			**2**
9.	Parking of tankers on the highways	**R1-450**		**1**			**3**
10.	Speed of the vehicle	**R1-407**		**1**			**4**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
11.	Warning symbols	**R2-31**			**1**		**5**
12.	Design of the tanker lorries	**R2-34**		**1**			**6**
13.	Static electricity responsibilities of driver	**R2-31**		**1**			**7**
14.	Inspection and maintenance of vehicles	**R1-363**		**1**			**8**
15.	Check list	**R1-360**			**1**		**9**
16.	Loading and decanting procedures and communication	**R1-360**		**1**			**10**
UNIT – IIROAD SAFETY							
17.	Introduction	**R1-23**		**1**			**11**
18.	Factors for improving safety on roads	**R1-42**		**1**			**12**
19.	Causes of accidents due to drivers and pedestrians	**R1-51**		**1**			**13**
20.	Design, selection, operation of motor trucks	**R1-79**		**1**			**14**
21.	Maintenance of motor trucks	**R1-123**		**1**			**15**
22.	Preventive maintenance	**R1-123**		**1**			**16**
23.	Check lists	**R1-360**			**1**		**17**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
24.	Motor vehicles act	**R2-86**		**1**			**18**
25.	Motor vehicle insurance and surveys	**R2-10**		**1**			**19**
26.	Road safety signs	**R2-31**			**1**		**20**
UNIT – IIIDRIVER AND SAFETY							
27.	Driver safety programme	**R2-38**		**1**			**21**
28.	Selection of drivers and driver training	**R2-57**		**1**			**22**
29.	Driving test and drivers responsibility	**R2-57**		**1**			**23**
30.	Road signals and signs	**R2-31**			**1**		**24**
31.	Accident reporting and investigation procedures	**R2-77**			**1**		**25**
32.	Safe driving incentives and slogans in driver cabin	**R2-77**		**1**			**26**
33.	Motor vehicle transport workers act	**R1-137**		**1**			**27**
34.	Driver relaxation and rest pauses	**R2-55**		**1**			**28**
35.	Speed and fuel conservation	**R1-127**		**1**			**29**
36.	Emergency planning and Hazmat codes	**R1-93**		**1**			**30**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – IVROAD CHARACTERISTICS AND PAVEMENT CONDITIONS							
37.	Road alignment and gradient	**R1-197**		**1**			**31**
38.	Reconnaissance and ruling gradient	**R1-265**		**1**			**32**
39.	Maximum rise per k.m, braking characteristics of vehicle	**R1-83**		**1**			**33**
40.	Skidding, restriction of speeds and significance of speeds	**R1-307**		**1**			**34**
41.	Pavement conditions, Sight distance, Safety at intersections	**R1-290**		**1**			**35**
42.	Traffic control lines and guide posts	**R2-61**		**1**			**36**
43.	Guard rails and barriers, street lighting and illumination	**R2-43**			**1**		**37**
44.	Overloading, concentration of driver, Plant railway	**R1-444**		**1**			**38**
45.	Clearance,track,warning methods	**R1-286**		**1**			**39**
46.	Loading and unloading	**R1-442**			**1**		**40**
UNIT – VSHOP FLOOR AND REPAIR SHOP SAFETY							
47.	Transport precautions	**R1-148**		**1**			**41**
48.	Safety on manual	**R1-112**		**1**			**42**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
49.	Mechanical handling equipment operations safe driving	**R1-201**		**1**			**43**
50.	Movement of cranes and conveyors etc	**R2-86**		**1**			**44**
51.	Servicing and maintenance	**R1-349**		**1**			**45**
52.	Equipment grease rack operation	**R1-346**		**1**			**46**
53.	Wash rack operation	**R2-43**		**1**			**47**
54.	Battery charging, gasoline handling	**R2-31**		**1**			**48**
55.	Other safe practices	**R1-113**			**1**		**49**
56.	Off the road motorized equipment	**R1-394**		**1**			**50**
TOTAL HOURS							**50**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Reference Books

57. K. (Ed.). (2015). *Road transport safety management system*. Ukraine: 4. European Union Twinning Project.

58. J.J.F., C. (2009). *Crow-Road safety manual*. SWOV.

59. J. (2017). *Urban Road safety*. Transport Research Laboratory, Berkshire,UK.

Web Resources

60. W1-https://www.slideshare.net/Ministerstvo/road-transport-safety-managemet-system

E – Books /Library INFLIBNET RESOURCES

61. https://nlist.inflibnet.ac.in/search/Record/EBC4040954

62. https://nlist.inflibnet.ac.in/search/Record/978-3-642-04754-1

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Advanced driver assistance system	Peer teaching	1	HB

2.	Distracted Driving	Assignments	1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**1**	**Lecture**	**PPT**	**Behavior based safety**	**1**
2	**V**	**Lecture**	**PPT**	**Pedestrians and vehicle separations**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Motor vehicle transport workers act)**	**50%**
3.	**II INTERNAL**	**Unit – III (from Driver relaxation and rest pauses),IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.I.VivekRamkumar**		
Programme Coordinator	**Mr.A.Jaiveerkumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Occupational Health and Hygiene**	**Course Code :**	**19FS405**
Year / Semester	**II/IV**	**Section**	**--**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**5**
Course Teacher Name	**Mr. V.Dhamotharan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I INTRODUCTION OF OCCUPATIONAL HEALTH AND HYGIENE							
1	**Meaning of industrial hygiene**	**W1**		**1**			**1**
2	**Meaning of occupational health**	**W1**		**1**			**2**
3	**Difference between industrial hygiene and occupational health**	**W1**		**1**			**3**
4	**Work co-ordination between industrial hygienist and safety officer**	**W1**		**1**	**1**		**5**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	**Ergonomics**	**W1**		**2**			**7**
6	**First aid**	**W1**		**2**			**9**
7	**Poisoning first aid and antidotes**	**W1**		**1**			**10**
UNIT – II VARIOUS HEALTH HAZARDS & CONTROLS							
8	**Forms of chemical agents and biological agents for health hazards**	**W2**		**1**			**11**
9	**Routes of entry of hazardous substances into the body**	**W2**		**1**			**12**
10	**Eight key steps for assessing the health risk, methods of control**	**W2**		**1**	**1**		**14**
11	**Effects of vibration and its prevention measures**	**W2**		**2**			**16**
12	**Causes and effects of stress and its preventions strategies**	**W2**		**2**			**18**
13	**Types of skin hazards**	**W2**		**1**	**1**		**20**
UNIT– III INDUSTRIAL SANITATION							
14	**Introduction**	**W3**		**1**			**21**
15	**Safe water supply**	**W3**		**1**	**1**		**23**
16	**Collection and disposal of liquid & solid waste**	**W3**		**1**			**24**
17	**Safe food supply**	**W3**		**1**			**25**
18	**Control of insects & rodents**	**W3**		**1**			**26**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
19	**Sanitary facilities & other personal services**	**W3**		**1**			**27**
20	**Maintenance of general cleanliness**	**W3**		**1**			**28**
21	**Causes of occupational dermatitis**	**W3**		**1**			**29**
22	**Types of occupational dermatitis, treatment**	**W3**		**1**			**30**
UNIT – IV THE PULMONARY DISEASES							
23	**Introduction**	**W4**		**1**			**31**
24	**Properties of dust**	**W4**		**1**			**32**
25	**Atmospheric dust concentration & particle size**	**W4**		**1**			**33**
26	**Classification of dust based on its effect in the body**	**W4**		**1**			**34**
27	**Anatomical factors in dust injuries**	**W4**		**1**			**35**
28	**Physiological factors in dust injuries**	**W4**		**1**			**36**
29	**Dust causing pulmonary fibrosis**	**W4**		**1**			**37**
30	**A study of cancerous tissue, benign versus malignant tumors**	**W4**		**1**			**38**
31	**Definition of carcinogenic chemical**	**W4**		**1**			**39**
32	**The risk associated with occupational & environmental carcinogens**	**W4**		**1**			**40**
UNIT – V OCCUPATIONAL PHYSIOLOGY							
33	**Man as a system component**	**W5**		**1**			**41**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
34	**Allocation of functions , efficiency**	**W5**		**1**			**42**
35	**Occupational work capacity**	**W5**		**1**			**43**
36	**Aerobic and anaerobic work**	**W5**		**1**			**44**
37	**Evaluation of physiological requirements of jobs**	**W5**		**1**			**45**
38	**Parameters of measurements, categorization of job heaviness**	**W5**		**1**			**46**
39	**Work organization, stress, strain**	**W5**		**1**	**1**		**48**
40	**Fatigue, rest pauses , shift work**	**W5**		**1**			**49**
41	**Personal hygiene**	**W5**		**1**			**50**
TOTAL HOURS							**50**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes)P – Practical

Reference Books

1. *Handbook of occupational health and safety*. (1982). Chicago: NSC.

Web Resources

63. W1- https://www.slideshare.net/HemantKumar98/occupational-health-and-safety-139535565

64. W2- https://www.slideshare.net/jaboink/occupatinal-health-hazards

65. W3- https://www.slideshare.net/search/slideshow?searchfrom=header&q=INDUSTRIAL+SANITATION

66. W4- https://www.slideshare.net/shas595/respiratory-diseases-2834774

67. W5- https://www.slideshare.net/JasmineJohn/work-physiology-12957808

E – Books /Library INFLIBNET RESOURCES

1. https://nlist.inflibnet.ac.in/search/Record/EBC4933529
2. https://nlist.inflibnet.ac.in/search/Record/EBC4306367

Gaps in the Syllabus

SL.	Name of the Topic	PROPOSED	No of Hours	Hours with in the Time Table (HT) /

NO		ACTION	Allotted	Hours beyond the Time Table (HB)
1.	**Occupational rehabilitation**	**Assignments**	**01**	**HB**
2.	**Musculoskeletal disorders**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Learning from Accidents**	**1**
2	**III**	**Lecture**	**PPT**	**Musculoskeletal disorders**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Safe food supply)**	**50%**
3.	**II INTERNAL**	**Unit – III (Control of insects and rodents) , IV, V**	**50%**

4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.V.Dhamotharan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Safety at Oil & Gas Industries**	**Course Code :**	**19FS406**
Year / Semester	**II/IV**	**Section**	**--**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**55**
Course Teacher Name	**Mr. P. Navaneethakrishnan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – IHEALTH SAFETY AND ENVIRONMENT MANAGEMENT							
1	**Learning from the incidents**	**E1 - 01**		**2**	**1**		**3**
2	**Hazards inherent in oil and gas industry**	**E1 - 10**		**2**	**1**		**6**
3	**Risk management techniques used in the Oil and gas Industries**	**E1 - 18**		**2**	**1**		**9**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
4	**Documented evidence of an organization s Process safety arrangements**	**E1 - 32**		**2**			**11**
UNIT – IIIHYDRO CARBON PROCESS SAFETY- 1							
5	**Contractor management**	**E2 - 01**		**2**			**13**
6	**Process safety management**	**E2 - 05**		**2**	**1**		**16**
7	**Role and Purpose of a permit to work system**	**E2 - 08**		**2**			**18**
8	**Principles of safe shift handover**	**E2 - 14**		**2**			**20**
9	**Plant operation and maintenance**	**E2 - 17**		**2**			**22**
10	**Start up and shut down**	**E2 - 26**		**2**			**24**
11	**Failure modes**	**E3 - 01**		**1**	**1**		**26**
12	**Safety critical equipments control**	**E3 - 10**		**2**			**28**
13	**Safe containment of hydrocarbons**	**E3 - 15**		**2**	**1**		**31**
14	**Fire hazards risks and control**	**E3 - 31**		**2**			**33**
UNIT – IIIHYDRO CARBON PROCESS SAFETY- 2							
15	**Types of Failure mode that may lead to loss of Containment from Hydrocarbons**	**E3 - 06**		**2**			**35**
16	**Controls available to maintain safety critical equipment**	**E3 - 10**		**2**			**37**
17	**Hazards Risk and controls available for safe containment of Hydrocarbons in off shore and onshore**	**W1**		**2**			**39**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
18	**Control measure available for operating boilers and furnaces**	**W2**		**2**			**41**
UNIT – IVFIRE PROTECTION AND EMERGENCY RESPONSE							
19	**Fire and explosion in Oil and Gas industry**	**E4 - 01**		**2**			**43**
20	**Appropriate control measures to minimize the effects of the explosion in the oil and gas industries**	**E4 - 03**		**2**			**45**
21	**Principles, procedures and resources for effective Emergency response**	**E4 - 10**		**2**	**1**		**48**
22	**Safety Signages in Oil & Gas Industry**	**W3**		**2**			**50**
UNIT – VLOGISTICS AND TRANSPORT OPERATIONS							
23	**Identification of Hazards and suitable control measures for marine Transport in the Oil and gas industry**	**E5 - 01**		**2**			**52**
24	**Identification of main Hazards and the control measures for land transport in the oil and gas industry**	**E5 - 08**		**2**	**1**		**55**
TOTAL HOURS							**55**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes)P – Practical

Web Resources

68. W1- http://solvents.phillips66.com/en/hse/documents/hydrocarbonsafetycopinternetshow1.pdf

69. W2- http://www.banksengineering.com/blrsafety.htm#:~:text=Provide%20adequate%20air%20to%20boiler,Tampering%20with%20combustion%20safety%20control.

70. W3- https://www.ishn.com/articles/99966-dont-neglect-safety-signage-in-oil-and-gas-turnarounds

E – Books /Library INFLIBNET RESOURCES

1. **NEBOSH Oil and Gas Certificate E-Book.**

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	**Learning from the Accidents**	**Assignments**	**01**	**HB**
2.	**Control measure available for operating boilers and furnaces**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Learning from Accidents**	**1**
2	**III**	**Lecture**	**PPT**	**Safe Containment of Hydrocarbons**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Controls available to maintain safety critical equipment)**	**50%**
3.	**II INTERNAL**	**Unit – III (from Hazards Risks & Controls available for safe containment of Hydrocarbons in off shore and on shore) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.P.Navaneethakrishnan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme:B.Sc Fire and Industrial Safety

Title of the Course : Industrial Plant Layout and Work Shop Safety **Course Code** : 19FS407

Year / Semester : II / IV **Section:** **Total No. of Students** : 22

No of Credits : 2 **Total No. of Contact Hours** : 30**Course**

Teacher (s) Name : Mr.B.Satheeshprabu **Corresponding lab Paper** : **No**

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
Industrial plant Layout								
1.		1	Introduction	-	-	-	2	2
2.		2	Plant layout for food Industries,	-	-	-	1	3

3.		2	Plant layout for Chemical Industries	-	-	-	1	4
4.		3	Plant layout for Construction Industries	-	-	-	2	6
5.		4	Process layout for food Industries	-	-	-	2	8
6.		5	Process layout for Chemical Industries	-	-	-	2	10
7.		6	Process layout for Construction Industries	-	-	-	2	12
8.		7	Machineries layout	-	-	-	2	14
9.		8	Emergency evacuation planning layout.	-	-	-	2	16
10.		9	Occupational Health and Safety layout.	-	-	-	2	18
11.		10	Piping layout	-	-	-	2	20
12.		11	Material handling layout	-	-	-	2	22
Work shop Safety								
13.		12	Introduction	-	-	-	1	23
14.		12	EHS guidelines	-	-	-	1	24
15.		13	Floor marking	-	-	-	1	25
16.		13	Emergency symbols	-	-	-	1	26
17.		14	Machine guarding	-	-	-	1	27

18.		14	Lighting	-	-	-	1	28
19.		15	Ventilation and other aspects	-	-	-	1	29
20.		15	Housekeeping and 5s methods	-	-	-	1	30
Total								30

Include Lab manual details and mode of assessment direct and indirect

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	Mr. B.Satheeshprabu		
Module Coordinator (one person who would coordinate all Courses in a Programme according to OBE)	Mr. A.Jaiveer Kumar		

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	Mr.I.VivekRamkumar			
Dean Academics	Dr. S. Priya			
Principal	Dr. R. Sujatha			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Basics of Industrial Safety**	**Course Code :**	**19FS409**
Year / Semester	**II**	**Section**	**MCHM 'A' & BBA**
Total No. of Students	**69**	**No. of Credits**	**2**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**30**
Course Teacher Name	**Mr.B.Satheeshprabu**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I							
1	**Introduction**	**W1**		**1**			**1**
2	**Selection of plant Location & Layout**	**W1**		**1**			**2**
3	**Personal protective equipment (PPE)**	**W2**		**1**			**3**
4	**Types of PPE**	**W3**		**1**			**4**
5	**Machinery guard**	**W4**		**1**			**5**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
6	**Types of machine guard**	**W4**		**1**			**6**
UNIT – II							
7	**Housekeeping: Definition – Advantage of housekeeping**	**W5**		**1**			**7**
8	**5's concept of housekeeping**	**W5**		**1**			**8**
9	**Material handling: - Manual handling- Mechanical handling**	**W6**		**1**			**9**
10	**Cranes and forklifts**	**W6**		**1**			**10**
11	**Powered equipments**	**W6**		**1**			**11**
12	**Other material handling machinery**	**W6**		**1**			**12**
UNIT – III							
13	**Ventilation –Types – Advantages**	**W7**		**1**			**13**
14	**Lighting & Illumination**	**W8**		**1**			**14**
15	**Occupational health hazards**	**W9**		**1**			**15**
16	**Occupational health hazards**	**W9**		**1**			**16**
17	**ON Site & OFF Site Emergency Response Plan (ERP)**	**W10**		**1**			**17**
18	**ON Site & OFF Site Emergency Response Plan (ERP)**	**W10**		**1**			**18**
UNIT – IV							
19	**Work permit and NOC**	**W11**		**1**			**19**
20	**Definition- Types of work permit**	**W11**		**1**			**20**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
21	**Excavation permit**	**W11**		**1**			**21**
22	**Confined space entry permit- Acid entry permit**	**W11**		**1**			**22**
23	**Preparation of work permit Principles of accident prevention-**	**W11**		**1**			**23**
24	**Accident prevention programmes**	**W11**		**1**			**24**
UNIT – V							
25	**Laws on safety (Introduction and objectives)**	**W12**		**1**			**25**
26	**Factory act- Duties and responsibilities of safety officer**	**W12**		**1**			**26**
27	**Safety policy- Safety organization**	**W12**		**1**			**27**
28	**Safety committees**	**W12**		**1**			**28**
29	**Safety promotion role by:- Government, Management, Supervisor, Workers, Trade union.**	**W13**		**1**			**29**
30	**Safety promotion role by:- Government, Management, Supervisor, Workers, Trade union**	**W13**		**1**			**30**
TOTAL HOURS							**30**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

Reference Books

1. R. (n.d.). *1. "A Guide to Health safety and environment"*,.Khanna Publication.
2. L. (n.d.). , *"Loss prevention in process industries"*,. London: Butterworth Publication.

Web Resources

3. W1 - https://www.slideshare.net/AbdElRahmanElsayed4/plant-location-layout-design
4. W2- https://info.basicsafe.us/safety-management/blog/lockout-tagout-procedure-in-8-simple-steps
5. W3 - https://www.ccohs.ca/oshanswers/hsprograms/house.html#
6. W4 - https://www.ehstoday.com/safety/article/21910989/machine-safeguarding-risk-assessment-and-risk-reduction
7. W5 - https://www.factorysystems.eu/en/gme/5s-method-housekeeping/
8. W6 - https://www.tatapower.com/pdf/sustainability/safety/Material-Handling-Storage.pdf
9. W7 - https://www.ncbi.nlm.nih.gov/books/NBK143277/
10. W8 - https://www.slideshare.net/HDIT/illumination-lighti
11. W9 -https://www.osha.gov/shpguidelines/hazard-prevention.html
12. W10 - http://www.environmentclearance.nic.in/writereaddata/online/RiskAssessment/30092016ORJEGHK1Onsite.pdf
13. W11 - https://www.hseblog.com/the-different-types-of-the-permits/
14. W12 - https://www.keshacademy.com/media/docs/policies/KESH-Health%20and%20Safety%20Policy.pdf
15. W 13 - http://www.ilocis.org/documents/chpt21e.htm

E – Books /Library INFLIBNET RESOURCES

16. Residential, Commercial and Industrial Electrical Systems VOLUME 3, by JOSHI.Published 2007- https://nlist.inflibnet.ac.in/search/Record/EBC5121201

17. Risk Assessment of Chemicals: An Introduction, Published 2007- https://nlist.inflibnet.ac.in/search/Record/978-1-4020-6102-8

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Fire hydrant	Peer Teaching	1	HB
2.	Gas welding	Assignments	1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Zero Mechanical State (ZMS)**	**1**
2	**V**	**Lecture**	**PPT**	**Competent persons**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Occupational health hazards)**	**50%**
3.	**II INTERNAL**	**Unit – III (from ON Site & OFF Site Emergency Response Plan (ERP)) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.B.Satheeshprabu**		
Programme Coordinator			

Approved by

	Name	Signature	Date
HoD	**Mr.I.VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme:B.Sc Fire and Industrial Safety

Title of the Course : Scaffolding & work at height **Course Code :**

Year / Semester : I / II **Section:** **Total No. of Students : 22**

No of Credits : 2 **Total No. of Contact Hours :** 30**Course**

Teacher (s) Name : Mr. V. Dhamotharan **Corresponding lab Paper : No**

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
1.		1	Introduction	-	-	-	2	2
2.		2	Tied off procedure	-	-	-	3	5
3.		3	3 point anchorage while ascending & descending	-	-	-	3	

								8
4.		4	Wearing the full body harness with double landyard	-	-	-	3	11
5.		5	Using mehod of vertical life line	-	-	-	3	14
6.		6	Using method of horizontal lifeline	-	-	-	3	17
7.		7	Training on use of fall arrestor- rope grab	-	-	-	2	19
8.		8	Training on use of fall arrestor – rope retractable	-	-	-	3	22
9.		9	Using the safety net for man falling	-	-	-	2	24
10.		10	Using the safety net for material falling	-	-	-	2	26
11.		11	Inspection of all protection equipment	-	-	-	2	28
12.		12	Learning of technical data about fall protector.				1	29
13.		13	Practical Examination and Final Assessment.				1	30
Total								30

Include Lab manual details and mode of assessment direct and indirect

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	Mr. V. Dhamotharan		
Module Coordinator (one person who would coordinate all Courses in a Programme according to OBE)	Mr. A.Jaiveer Kumar		

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	Mr.I.VivekRamkumar			
Dean	Dr. S. Priya			

Academics				
Principal	Dr. R. Sujatha			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE, MADURAI
DEPARTMENT OF FIRE & INDUSTRIAL SAFETY

Academic Year: 2020-21/V Sem (Odd) **Class: B.Sc-III (F&IS)**

S.NO	Course Name	Staff Name
1	Hazard Identification and Risk Analysis	Mr. VivekRamkumar
2	Safety in Engineering Industries	Mr.B.Satheeshprabu
3	Safety in Inspection and Audit	Mr. Jaiveerkumar. A
4	Search and Rescue Techniques Paramedics	Mr. Jaiveerkumar. A
5	Elective I: Disaster Management and APELL	Mr.Dhamodharan.V
6	Elective II: Safety in Mines	Mr. Brameshwaran
7	Campus Recruitment Test	Mr.V.VSundaram
8	Industrial Safety Lab	Mr. Brameshwaran

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme**: Fire & Industrial Safety**

Title of the Course **:** **Hazard Identification and risk Analysis** Course Code **: 18FS501**

Year / Semester **: III / V** Section**: B.Sc** Total No. of Students **: 24**

No of Credits : **4** Total No. of Contact Hours **: 4**Course

Teacher (s) Name : **I. VivekRamkumar** Corresponding lab Paper **: No**

Sl. No	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery / No of Hours			Cumulative Hours
				L	T	P	
UNIT – I - HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)							

1	Hazard , Types of Industrial hazards	W1-5, 6		1			1
2	Identifying the Hazard , Ranking the Hazard	W1-10, 11		1			2
3	Eliminating the Hazard and Risk	W1-9		1			3
4	Frequency Rate , Severity Rate ,Risk Matrix	W1-1, 2, 3, 4		1			4
5	Risk Control , Engineering Control	W1-62			1		5
6	Administrative Control	W1-63		1			6
7	Personal Protective Equipments	W1-131,132		1			7
8	Five steps of HIRA	W1-74,75		1			8
9	ALARA and ALARP	W1-12,13		1			9
UNIT – II – JOB SAFETY ANALYSIS (JSA)							

10	Introduction of JSA	W2-55		1			10
11	Why JSA is required? And Where to begin?	W2-2, 3		1			11
12	Benefits of JSA	W2-4, 5		1			12
13	Key elements in preparing JSA	W2-54		1			13
14	Steps to prepare JSA and Basic job steps	W2-35, 36		1			14
15	Potential hazards	W2-77		1			15
16	Preventive steps	W2-147		1			16
17	Responsible person	W2-224		1			17
18	**JSA format – Examples**	W2-18			1		18
UNIT – III – SAFETY MANAGEMENT TOOLS							
19	Introduction of safety management tools and hazard	W3-6, 7		1			19

20	Risk and risk assessment	W3-13		1			20
21	Techniques and methodologies for risk analysis	W3-18,19		1			21
22	checklist - what if analysis	W3-46			1		22
23	Hazard and Operability Studies (HAZOP)	W3-47		1			23
24	Hazard Analysis (HAZAN)	W3-56		1			24
25	Standard Operating Procedure (SOP) - Fault Tree Analysis (FTA)	W3-57		1			25
26	Even Tree Analysis (ETA) and Failure Mode Effect Analysis (FMEA)	W3-76		1			26
27	Material Safety Data Sheet (MSDS)	W3-96			1		27
UNIT – IV – ACCIDENT INVESTIGATION & REPORTING (AIR)							
28	Introduction to Accidents	W4-2, 3		1			28
29	Types of Accidents	W4-10, 11		1			29
30	Reportable & Non Reportable accidents	W4-57, 58		1			30

31	Purpose of AIR and Heinrich Triangle	W4- 65		1			31
32	Domino's Sequence and SHELL model	W4-66		1			32
33	Basic steps in AIR	W4-88, 89		1			33
34	Immediate cause and Root Cause Analysis (RCA)	W4-124,125		1			34
35	Corrective Action (CA) and Preventive Action (PA)	W4-174,175		1			35
36	Report preparation	W4-135			1		36
UNIT – V – SAFETY INSTRUMENTATION SYSTEM							
37	Introduction of Safety Instrumentation System	W5-4, 5		1			37
38	Design & Engineering	W5-15		1			38
39	Erection , Commission & Validation	W5-32, 33, 34		1			39

40	Safety Line Cycle	W5- 55		1			40
41	Operation & Maintenance	W5- 65			1		41
42	Third Party Certification of Instruments	W5- 88		1			42
43	Electrical Area Classification	W5- 115		1			43
44	Combustible /Flammable Gas Detection	W5- 166,167		1			44
45	Explosion Protection	W5 - 256		1			45

Web Resources

W1	Hazard Identification, Risk Assessment and Control Procedure, Western Sydney University
W2	Consultation Education and Training (CET) Division Michigan Occupational Safety and Health Administration
W3	Hazop and hazan identifying and assessing process industry hazards trevorkletz
W4	Ahandbookofincidentandaccidentreporting-chrisjohnson

W5	Operations & Maintenance Best Practices A Guide to Achieving Operational Efficiency

E – Books /Library INFLIBNET RESOURCES

E1	RISK ASSESSMENT Theory, Methods, and Applications,A JOHN WILEY & SONS, INC., PUBLICATION
E2	www.michigan.gov/miosha
E3	Hazop and Hazen Trevor Kletz
E4	AHANDBOOKOFINCIDENTANDACCIDENTREPORTINGChrisJohnson
E5	Safety Instrumented Systems: Design, Analysis and Justification 2nd Edition and Gruhn, RE. U heddie, RE SAFETYINSTRUMENTEDSYSTEMS:Design, Analysis, and Justification2nd Edition By Paul Gruhn, P.E., CFSEandHarryCheddie, P.Eng., CFSE

Gaps in the Syllabus

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Risk an Engineering control, Job Safety Analysis, Operations and Maintenance	Assignment	5	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	2	Lecture	PPT	Job Safety Analysis for construction safety	1
2	2	Lecture	PPT	Preventive steps and potential hazards	1
3	4	Lecture	PPT	Reportable & Non Reportable accidents in various industries	1
4	4	Lecture	PPT	Accident report preparation	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit - 1	20%
2.	I INTERNAL	Unit- I,II, III (up to 3.5)	50%
3.	II INTERNAL	Unit– III (from3.6-) ,IV,V	50%
4.	End Semester Examination	Unit I to V	100%

Topics beyond Syllabus

M1	Job Safety Analysis for construction safety
M2	Preventive steps and potential hazards
M3	Reportable & Non Reportable accidents in various industries

M4	Accident report preparation

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage (to be decided by the Department)
1	SLIP / CLASS TEST	Unit/Portion to be decided by the Course Teacher and the HoD	20%
2	I INTERNAL	UNIT - I, II, III	50%
3	II INTERNAL	UNIT - III, IV, V	50%
4	Summative Examination	ALL FIVE UNITS	100%

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**I. VivekRamkumar**		

Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)	**A.Jaiveerkumar**		

	Name	**Signature**	**Date**
HoD	**I. VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme: Fire and Industrial Safety **Programme Code : FS1061**

Title of the Course : Safety in Engineering Industry **Course Code :18FS502**

Year / Semester : II / III **Section:** **Total No. of Students : 24**

No of Credits : 4 **Total No. of Contact Hours : 4**

Course Teacher (s) Name : B.Satheeshprabu **Corresponding lab Paper: No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
	UNIT I – PLANT LOCATION & LAYOUT						
47.	Selection of plant location	W5		1			1
48.	Consideration of land, water, electricity,	W5		1			2
49.	Location for waste treatment and	W5		1			3
50.	Disposal further expansions	W5		1			4
51.	Safe location of Chemical storages, LPG, LNG, CNG, acetylene, ammonia, chlorine, explosives	W5		1			5

	and propellants						
52.	Equipment layout	W5		1			6
53.	Safety system	W1		1			7
54.	Fire hydrant location	W1		1			8
55.	Fire service rooms	W1		1			9
56.	Facilities for safe effluent disposal and treatment tanks	W1		1			10
	UNIT II – PRINCIPLE OF MACHINE GUARDING						
57.	Guarding during maintenance, Zero Mechanical State (ZMS), Definition, policy, for ZMS	W4		1			11
58.	Guarding of Hazards	W4		1			12
59.	point of operation protective devices, machine guarding, types, fixed guard, interlock guard, automatic guard, trip guard, electron eye, positional control guard, fixed guard fencing	W4		1			13
60.	guard construction& guard opening Selection and suitability:	W4		1			14
61.	Lathe Drilling, Boring, Milling, Grinding ,Shaping	W4		1			15
62.	Sawing ,Shearing,Presses,Forge hammer, flywheels ,shafts couplings, Gears	W4		1			16
63.	Sprockets wheels and chains	W4		1			17
64.	Pulleys and belts	W4		1			18

65.	Authorized entry to hazardous installations	W4		1			19
66.	Benefits of good guarding systems	W4		1			20
UNIT III – HOT WORK SAFETY							
67.	Gas welding and oxygen cutting, resistances welding, arc welding and cutting, common hazards, personal protective equipment, training,	W1		1			21
68.	Safety precautions in brazing, soldering and metalizing	W1		1			22
69.	Explosive welding, selection care and maintenance of the associated equipment and instruments	W1		1			23
70.	Safety in generation, Distribution and Handling of industrial gases	W1		1			24
71.	color coding	W1		1			25
72.	Flash back arrestor	W1		1			26
73.	Leak detection	W1		1			27
74.	Pipe line safety	W1		1			28
75.	Storage and handling of gas cylinders	W1		1			29
76.	Cold work Safety	W1		1			30
UNIT IV – SAFETY IN INSPECTION & TESTING							

77.	Heat Treatment operations	W6		1			31
78.	Electro plating	W6		1			32
79.	Sand and shot blasting	W6		1			33
80.	Dynamic balancing – hydro testing	W6		1			34
81.	Valves – boiler drums and headers	W6		1			35
82.	Pressure vessels – air leak test	W6		1			36
83.	Steam testing – safety in radiography	W6		1			37
84.	Personal monitoring devices	W6		1			38
85.	Radiation hazards	W6		1			39
86.	Engineering and administrative controls	W6		1			40
UNIT - V SAFETY IN MATERIAL HANDLING							
87.	General safety consideration in material handling	W7		1			41
88.	Ropes, Chains, Sling, Clamps,Arresting gears	W7		1			42
89.	Prime movers	W7		1			43
90.	Ergonomic consideration in material handling, design, installation, operation andmaintenance of driving gear for hoisting mechanism	W7		1			44

91.	Ergonomic consideration in material handling, design, installation, operation andmaintenance of driving gear for hoisting mechanism	W7		1			45
92.	Traveling mechanism Selection, operation and maintenance of Industrial Trucks	W7		1			46
93.	Mobile Cranes	W7		1			47
94.	Tower crane	W7		1			48
95.	Checklist	W7		1			49
96.	Competent persons	W7		1			50
TOTAL HOURS							50

Web Resources

W1	www.OSHA.gov
W2	https://www.oshatrain.org/courses/pdf/2009-113.pdf
W3	www.tutorialpoint.com
W4	en.wikipedia.org/wiki/Machine_guarding
W5	MEC250-POM-Plant Location and Layout
W6	LU Chemical StorageJuly2017
W7	ABRASIVE BLASTING OPERATIONS

W8	Material Handling

E – Books /Library INFLIBNET RESOURCES

E1	Safety and Health for Engineers, Roger L. Brauer
E2	Safety Science: Methods to Prevent Incidents and Worker Health Damage at the Workplace, Eduardo Calixto

Gaps in the Syllabus

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Arc Welding Power Source	Lecture	1	**Hours beyond the Time Table**
2.	Design of a material handling system	Lecture	1	**Hours beyond the Time Table**

* ***Proposed Actions can be Assignments , Seminars, Peer Teaching, Industrial Visit , Others (if any)***

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1.	I	Lecture	Online	**Safety Engineering and Accident Causing Mechanisms**	1
2.	III	Lecture	Online	Human error, Classification and types	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit - 1	20%
2.	I INTERNAL	Unit- I,II, III (upto Safety in generation, Distribution and Handling of industrial gases)	50%
3.	II INTERNAL	Unit– III (from color coding) ,IV,V	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by		
	Name	Signature	Date

Course Coordinator / In-charge	**Mr.B.SatheeshPrabu**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I. VivekRamkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Suthaja**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme: B.Sc Fire and Industrial Safety

Title of the Course :Safety Inspection and Audit **Course Code :18FS503**

Year / Semester : III /V **Section:** **Total No. of Students : 24**

No of Credits : 4 **Total No. of Contact Hours : 50Course**

Teacher (s) Name :Jaiveerkumar.A **Corresponding lab Paper : No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT – ISAFETY INSPECTION: AN INTRODUCTION							
1.	Inspection team and their obligations		W	1			1
2.	Starting the inspection – Inspection procedures		PPT	1			2

3.	Chemical Related inspections		PPT	1			3
4.	Specialized inspections		PPT	1			4
5.	Making the Report – Suggesting Recommendations.		PPT	1			5
UNIT – IISAFETY AUDIT: AN INTRODUCTION							
6.	Components of safety audit, types of audit, audit		PPT	1			6
7.	audit methodology, non conformity reporting (NCR),		PPT	1			7
8.	audit checklist and report – review of inspection,		PPT	1			8
9.	remarks by government agencies, consultants, experts		PPT	1			9
10.	perusal of accident and safety records, formats		PPT	1			10
11.	implementation of audit indication		PPT	1			11
12.	Identification of unsafe acts of workers and unsafe conditions in the shop floor.		PPT	1			12
13.	liaison with departments to ensure co-ordination – check list		PPT	1			13
UNIT – III ISO 45001 GUIDELINES							
14.	Introduction – standard		W	1			14
15.	Benefits of implementation		PPT	1			15
16.	PDCA cycle		PPT	2			17
17.	Risk based thinking- audits		PPT	1			18

18.	Scope – Normative references		PPT	1			19
19.	Context of organization		PPT	1			20
20.	Leadership – Planning		PPT	1			21
21.	Support – Operation		PPT	1			22
22.	Performance evaluation		PPT	1			23
23.	Improvement–Management System.		PPT	1			24
UNIT – IVISO 9000 & ISO 14000 GUIDELINES							
24.	ISO 9000-QMS		PPT	1			25
25.	ISO 14000-EMS		PPT	1			26
26.	Specifications, Objectives, Environmental policy		PPT	1			27
27.	Guidelines & Principles ISO 9000		W	1			28
28.	Guidelines & Principles ISO 14000		W	1			29
29.	Documentation requirements		PPT	1			30
30.	Implementation plan		PPT	1			31
31.	Registration		PPT	1			32
32.	Importance of ISO 9000 to the management		PPT	1			33
33.	Importance of ISO 14000 to the management		PPT	1			34
34.	Auditing ISO 9000		PPT	1			35

35.	Auditing ISO 14000		PPT	1			36
36.	General principles of Audit		PPT	1			37
37.	Steps in audit		PPT	1			38
38.	Audit Plan.		PPT	1			39
UNIT – VIMPLEMENTATION, OPERATION, CHECKING AND REVIEW							
39.	Guidelines for structure and Responsibilities,		W	1			40
40.	Top Management, Middle level Management		W	1			41
41.	Co-coordinator and employees – Developing procedures		W	1			42
42.	identifying training Needs, providing training, Documentation of training		PPT	1			43
43.	Training methodology Consultation and Communications		PPT	1			44
44.	Checking & Review, performance measurement and monitoring		LCD	1			45
45.	proactive and reactive monitoring, measurement techniques, inspections,		LCD	1			46
46.	recording investigation corrective action and follow up		LCD	1			47
47.	Records and records Management Handling Documentation, information, records.		PPT	2			49
48.	measuring equipment – Accidents reports, process & Procedures		W	1			50

Text Books

T1	
T2	
T3	
T4	

Reference Books

R1	
R2	
R3	
R4	

Web Resources

W1	https://www.osha.gov
W2	https://www.safetyinfo.com
W3	https://www.slideshare.net
W4	https://en.wikipedia.org

E – Books /Library INFLIBNET RESOURCES

E1	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=688508
E2	https://NQA-ISO-45001-Implementation-Guide
E3	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=257596
E4	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=1741662

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Audit checklist	Assignment	1	HB
2.	Inspection checklist	Assignment	1	HB
3	Non Confirmative Report	Assignment	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	Module	Mode of delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	2	Lecture	LCD	Risk assessment	1

2	3	Lecture	PPT	OSHAS 18001	1
3	5	Lecture	LCD	Hazard Identification	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage(to be decided by the Department)
	SLIP / CLASS TEST	Unit/Portion to be decided by the Course Teacher and the HoD	10
	I INTERNAL	UNIT - I,II, III	40
	II INTERNAL	UNIT - III,IV,V	50
	Summative Examination	ALL FIVE UNITS	100

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	Jaiveerkumar.A		
Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)	Jaiveerkumar.A		

Approved by			
	Name	**Signature**	**Date**
HoD	VivekRamkumar		

Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Program: B.Sc (F&IS) Program Code: FS1061

Title of the Course : Safety in mines Course Code:18FS506

Year / Semester : III / V Section: Total No. of Students : 24

No of Credits : 4 Total No. of Contact Hours : 50Course Teacher (s)

Name : R.Brameshwaran Corresponding lab Paper : Yes / No

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
	UNIT – IOPENCAST MINES						
1.	Types of Mines	W1	PPT	1			1
2.	Hazards in surface mining	W2	PPT	1			2

3.	Causes&prevention of accident from Heavy machinery belt&bucketconveyor,drilling,hand tool	W2	PPT	1			3
4.	pneumatic systems, pumping, water dust, electrical systems, fire prevention	W2	PPT	1			4
5.	Garage safety – accident reporting system	W2	PPT		1		5
6.	condition-safe transportation	W2	PPT		1		6
7	handling of explosives.	W2	PPT		1		7
UNIT - II UNDERGROUND MINES							
1	Hazard in underground mines	W2	PPT	1			8
2	Fall of roof and sides	W2	PPT	1			9
3	effect of gases-fire and explosions	W2	PPT	1			10
4	water flooding	W2	PPT	1			11
5	warning sensors	W2	PPT	1			12
6	gas detectors-	W2	PPT	1	1		14
7	occupational hazards-working conditions	W2	PPT	1	1		16
8	winding and transportation	W2	PPT	1			17
UNIT – III Tunneling							
1	Hazards from: ground collapse	W2	PPT	1			18

2	inundation and collapse of tunnel face	W2	PPT	1			19
3	falls from platforms and danger from falling bodies	W2	PPT	1			20
4	Atmospheric pollution (gases and dusts)	W2	PPT	1			21
5	trapping –transport-noise electrical hazards	W2	PPT	1			22
6	noise and vibration from: pneumatic tools and other machines	W2	PPT	1			23
7	ventilation and lighting	W2	PPT	1			24
8	– personal protective equipment	W2	PPT	1			25
	UNIT – IV Risk Assessment						
1	Basic concepts of risk	W3	PPT	1			26
2	reliability and hazard potential	W3	PPT	1			27
3	elements of risk assessment	W3	PPT	1			28
4	statistical methods	W3	PPT	1			29
5	control charts-appraisal of advanced techniques	W3	PPT	1			30
6	fault tree analysis	W3	PPT	1			31
7	failure mode and effect analysis	W3	PPT	1			32
8	quantitative structure	W3	PPT	1			33

UNIT - V ACCIDENT ANALYSIS AND MANAGEMENT							
1	Accidents classification and analysis	W3	PPT	1			34
2	fatal, serious, minor and reportable accidents	W3	PPT	1			35
3	safety audits recent development of safety engineering approaches for mines	W3	PPT	1	1		37
4	-frequency rates	W3	PPT	1			38
5	accident occurrence investigation	W3	PPT	1	1		40
6	measures for improving safety in mines	W3	PPT	1			41
7	emergency preparedness	W3	PPT	1	1		43
8	disaster management	W3	PPT	1	1		45
TOTAL HOURS							45

Reference Books

R1	Kejiriwal, B.K. Safety in Mines, GyanPrakashan, Dhanbad, 2001.
R2	DGMS Circulars-Ministry of Labor, Government of India press, OR Lovely Prakashan-DHANBAD, 2002.

Web Resources

W1	www.wiki.com
W2	www.OSHA .com
W3	www.department of labour.com
W4	

E – Books /Library INFLIBNET RESOURCES

E1	Safety in Mines: A Survey of Accidents, Their Causes and Prevention (1901 to 2000)

Gaps in the Syllabus

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Mine disaster	Peer Teaching	4	HB

2	Mine case study	Peer Teaching	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

Sl.NO	**Module**	**Mode of Delivery**	Teaching Aids	Planned Topics	**Total No of Hours Allotted**
1	1	Lecture	PPT	Mines plant layout	2

PORTION FOR EXAMINATION

Sl. No.	**Mode**	**Proposed Portions to be Covered**	**Proportion (Portion) in Percentage**
1.	SLIP / CLASS TEST	Unit - 1	20%
2.	I INTERNAL	Unit- I,II, III (up to 3.5)	50%
3.	II INTERNAL	Unit– III (from3.6-) ,IV,V	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	R.Brameshwaran		
Programme Coordinator	A.Jaiveer Kumar		

Approved by			
	Name	**Signature**	**Date**

HoD	I .VivekRamkumar		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme:B.Sc (F&IS) **Program Code : FS1061**

Title of the Course : Disaster Management and APELL **Course Code :18FS505**

Year / Semester : III / V **Section:** **Total No. of Students : 24**

No of Credits :4 **Total No. of Contact Hours :50**

Course Teacher (s) Name: R.Brameshwaran **Corresponding lab Paper:No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
UNIT – IINTRODUCTION TO DISASTER MANAGEMENT							
1.	Introduction & Dimensions of Natural & Anthropogenic Disasters	W1	PPT	1			1
2.	Principles/Components of Disaster Management	W1	PPT	1			2
3.	Organizational Structure for Disaster Management	W1	PPT	1			3
4.	Disaster Management schemes/ SOPs	W1	PPT	1			4
5.	Natural Disaster and Mitigation Efforts	W1	PPT		1		5
6.	Flood Control – Drought Disaster	W1	PPT		1		6
7.	Communicable diseases control	W1	PPT		1		7
8.	Important Statutes / Legal Provisions	W1	PPT	1			8
9.	IEDs/ Bomb Threat Planning	W1	PPT	1			9
10	Forests Fires – Oil Fires	W1	PPT		1		10

11	Crisis in Power sector Terrorism	W1	PPT	1			11
UNIT - II PHASES OF DISASTER MANAGEMENT							
1	Disaster Management Cycle	W1	PPT	1			12
2	Mitigation and Strategies	W1	PPT	1			13
3	identification and Vulnerability analysis	W1	PPT	1			14
4	Disaster Mitigation and Infrastructure	W1	PPT	1			15
5	Impact of Disaster on Development programmes	W1	PPT	1			16
6	Vulnerabilities caused by development	W1	PPT	1	1		18
7	developing a draft country level disaster and development policy	W1	PPT	1	1		19
8	: Preparedness – Disaster Risk Reduction (DRR)	W1	PPT	1			20
9	Emergency Operation Plan (EOP)	W1	PPT	1			21
10	Response and recovery	W1	PPT	1			22
11	Response aims & Activities	W1	PPT	1			23
12	Modern and Traditional responses to disaster	W1	PPT	1			24
13	Disaster Recovery plan	W1	PPT	1			25
UNIT – III EMERGENCY EVACUATION, ESCAPE & RESCUE (EER)							

1	Assembly point	W1	PPT	1			26
2	Siren coding	W1	PPT	1			27
3	Information Collection	W1	PPT	1			28
4	Hierarchical Test Analysis (HTA)	W1	PPT	1			29
5	Human Error Identification	W1	PPT	1			30
6	Evacuation procedure	W1	PPT	1			31
7	Human Behavior during Evacuation – Rescue Procedure	W1	PPT	1			32
8	Human Failures during Evacuation, Escape & Rescue	W1	PPT	1			33
9	Command & Control Errors	W1	PPT	1			34
10	Mock Drills Equipments	W1	PPT	1			35
UNIT - IVAPELL-(AWARENESS & PREPAREDNESS DURING EMERGENCIES AT LOCAL LEVEL)							
1	Introduction - Goals of APELL	W2	PPT	1			36
2	Benefits of Implementing APELL	W2	PPT	1			37
3	How does APELL work	W2	PPT	1			38
4	Role of APEEL Coordinating group	W2	PPT	1			39
5	APELL Partners Responsibilities	W2	PPT	1			40

6	APELL for Technological Disasters	W2	PPT	1			41
7	APELL for Natural Disasters	W2	PPT	1			42
UNIT - V Communicable diseases and risk assessment							
1	Assessing the risk of Communicable diseases.	W3	PPT	1			43
2	Dead bodies and the risk of communicable diseases.	W3	PPT	1			44
3	Prevention of communicable diseases following natural diseases Safe Water Sanitation	W3	PPT	1	1		46
4	site planning ,primary health –care services	W3	PPT	1			47
5	surveillance Immunization	W3	PPT	1			48
6	Prevention of vector –borne diseases	W3	PPT	1			49
7	Disaster preparedness plan and control of communicable Diseases	W3	PPT	1			50
TOTAL HOURS							50

Text Book

T1	Disaster management – B Narayan

T2	Disaster management and preparedness – Larry Collins

Reference Books

R1	H.K.Gupta (Ed) “Disaster management”, Universities Press, India, 2009

Web Resources

W1	https://www.undp.org/
W2	https://www.unenvironment.org/
W3	www.who/cds/dce.in

E – Books /Library INFLIBNET RESOURCES

E1	https://www.undp.org/content/dam/india/docs/disaster_management_in_india.pdf
E2	WHO/CDS/NTD/DCE/2006.9

Gaps in the Syllabus

SL.NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Natural disaster causes and its basic	Peer Teaching	4	HB
2	Communicable diseases types	Peer Teaching	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	1	Lecture	PPT	Disaster loss estimates	2
2	2	Lecture	PPT	Policy forming for disaster management	2

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage

1.	SLIP / CLASS TEST	Unit - 1	20%
2.	I INTERNAL	Unit- I,II, III (up to 3.5)	50%
3.	II INTERNAL	Unit– III (from3.6-) ,IV,V	50%
4.	End Semester Examination	Unit I to V	100%

Designation	**Prepared by**		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	R.Brameshwaran		

Programme Coordinator	A.Jaiveer Kumar		

Approved by			
	Name	**Signature**	**Date**
HoD	I .VivekRamkumar		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE
COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme :B.Sc Fire and Industrial Safety

Title of the Course : Search and Rescue Techniques &Paramedics **Course Code :18FS504**

Year / Semester : III / V **Section:** **Total No. of Students : 24**

No of Credits :4 **Total No. of Contact Hours : 50Course**

Teacher (s) Name : Jaiveerkumar.A **Corresponding lab Paper : No**

Sl. No.	TOPIC	Reference / Text BookPage No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	T	P	
	UNIT – IINTRODUCTION						
1.	Introduction to search techniques		PPT	1			1
2.	Factors influencing search and rescue		PPT	1			2
3.	Primary search - Secondary search		PPT	1			3
4.	Rescue techniques		PPT	1			4
5.	Shelter in place		PPT	1			5

6.	Exit assist		PPT	1			6
7.	Rescue by Fireman and fire equipment		PPT	1			7
8.	Qualities of rescue - Recue scenarios		PPT	1			8
9.	Fire man carry and drag rescue techniques		PPT	1			9
10.	Entry guard responsibility		W	1			10
UNIT – IICONFINED SPACE RESCUE & USE OF ROPE							
11.	Introduction to confined space		W	1			11
12.	Hazard recognition: Atmospheric hazard, physical hazard		PPT	1			12
13.	Permit requirements		PPT	1			13
14.	Entry Permit - Work permit		PPT	1			14
15.	Equipments needed for confined space entry		PPT	1			15
16.	Gas monitoring and venting equipment		LCD	1			16
17.	PPE - Hoisting Equipment		PPT	1			17
18.	Communication equipments - Non sparking tools		LCD	1			18
19.	Different types of Knots, Hitches and their Application in Rescue		LCD	1			19
UNIT – IIIRESCUE OPERATION & USE OF TECHNOLOGY IN RESCUE OPERATIONS							
20.	Rescue in mines		W	1			20
21.	Road accident rescue		W	1			21

22.	Rescue from high rise building		W	1			22
23.	Rescue in case of poisonous gas leak		W	1			23
24.	Rescue in sewer line		W	1			24
25.	Rescue from electrical appliance		W	1			25
26.	Rescue from fire incidents		PPT	1			26
27.	Rescue from major disaster earthquake, flood, tsunami etc		PPT	1			27
UNIT - IV							
28.	Hydraulic and pneumatically operated tools and equipment introduction		W	2			29
29.	Hydraulic jack		LCD	1			30
30.	hydraulic cutter		LCD	1			31
31.	hydraulic expander		LCD	1			32
32.	air lifting bags		PPT	1			33
33.	Electric power tools		PPT	1			34
34.	Electric cutter, electric saw, chain saw		PPT	1			35
UNIT – VPARAMEDICS							
35.	Human Anatomy		W	1			36
36.	First aid - Importance of first aid		V	1			37
37.	Principle of first aid		V	1			38

38.	ABC rules for first aid		V	1			39
39.	Types of wounds - Incised wounds		W	1			40
40.	Contused wounds - Lacerated wounds		W	1			41
41.	Punctured wounds		W	1			42
42.	Internal and external bleeding		W	1			43
43.	Dressing and bandages		PPT	1			44
44.	Types of Injuries – Fractures		PPT	1			45
45.	Electric shock - Electric burn		PPT	1			46
46.	Asphyxiation - Cardiac arrest and CPR		PPT			1	47
47.	Burns: Classification		PPT	1			48
48.	First aid treatment		PPT	1		1	50

Text Books

T1	
T2	
T3	
T4	

Reference Books

R1	
R2	
R3	
R4	

Web Resources

W1	https://study.com/
W2	https://www.slideshare.net/
W3	https://en.wikipedia.org/
W4	https://www.journals.elsevier.com/

E – Books /Library INFLIBNET RESOURCES

E1	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=5553537
E2	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=753250
E3	https:// General Rescue Manual.doc -kristinandjerry.name
E4	https://ebookcentral.proquest.com/lib/inflibnet-ebooks/detail.action?docID=1120409

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	PPEs	Assignment	1	HB
2.	LOTOs	Assignment	1	HB
3	Hazard identification	Assignment	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

Sl.NO	Module	Mode of delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	2	Lecture	LCD	Prevention and Risk Management	1
2	3	Lecture	PPT	Accident prevention	1
3	5	Lecture	PPT	Engineering equipment	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage(to be decided by the Department)
	SLIP / CLASS TEST	Unit/Portion to be decided by the Course Teacher and the HoD	10
	I INTERNAL	UNIT - I,II, III	40
	II INTERNAL	UNIT - III,IV,V	50
	Summative Examination	ALL FIVE UNITS	100

Designation	Prepared by		
	Name	Signature	Date
Course Coordinator / In-charge	Jaiveerkumar.A		

Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)	Jaiveerkumar.A		

Approved by			
	Name	**Signature**	**Date**
HoD	VivekRamkumar		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme :B.Sc(Fire and Industrial Safety)

Title of the Course : Industrial Safety Lab **Course Code :18FS507**

Year / Semester : III/V **Section:** **Total No. of Students : 10**

No of Credits : 2 **Total No. of Contact Hours :**

30Course Teacher (s) Name :R.Brameshwaran

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
1		1	Study of Fire Extinguishers (Water type, CO2 type, DCP, Foam type)	-			2	2
2		2	Study of Personal Protective Equipments (Safety Helmet, Belt, Hand Gloves, Goggles, Face shield, Ear plug and Ear Muffs)	-			3	5

3		3	First – aid Kit	-			3	8
4		4	Electrical (Earth continuity Test)	-			3	11
5		5	Road safety Signs and Symbols	-			3	14
6		6	Study of Respiratory equipments by demonstration of self -contained Breathing Apparatus	-			3	17
7		7	Different types of Rescue techniques during emergency	-			3	20
8		8	Handling and usage of different types of Hoses	-			3	23
9		9	Refilling and Recharging of Extinguishers	-			3	26
10		10	Different types of Knots and their usages	-			4	30

Designation	**Prepared by**		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	**R.Brameshwaran**		
Module Coordinator (one person who would coordinate all Courses in a	**A.Jaiveer Kumar**		

Programme according to OBE)			

	Name	**Signature**	**Date**
HoD	Mr.I.VivekRamkumar		
Dean Academics	Dr. S. Priya		

Principal	Dr. R. Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE, MADURAI
DEPARTMENT OF FIRE & INDUSTRIAL SAFETY

Academic Year: 2020-21/II Sem (EVEN) **Class: B.Sc-I(F&IS)**

S.NO	Course Code	Course	Staff Name	Dept
1	20UH201	Tamil / Hindi II	Mrs.M.Neela	Hindi
2	20UGE202	General English II	Mr.V.V.Sundaram	English
3	20FS203	Safety in chemical Industries	Mr.R. Brameshwaran	F & IS
4	20FS204	Fundamentals of Fire Technology	Mr.P.Navaneethakrishnan	F & IS
5	20FS205	Construction Safety	Mr.V.Dhamotharan	F & IS
6	20FS206	Work study & Ergonomics	Mr.B.Satheeshprabu	F & IS
7	20ES210	Environmental studies	Mr.P.Navaneethakrishnan	F & IS
8	20FS207	Fire fighting & Field training lab	Mr.P.Navaneethakrishnan	F & IS

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD SEMESTER)

Name of the Programme : Animation,CS,MHS,Food Science,Fire and Safety,Viscom and Networking

Title of the Course : Hindi III **Course Code: 19UH301**

Year / Semester: II YEAR/ III SEMESTER **Section:** **Total No. of Students:**

No.Of Credits: 3 **Total no. of Contact hours: 45**

S. No	Topic	Reference / Text Book Page No.	Teaching Aids	Mode of Delivery No. of Hours			Cummulative Hours
				L	T	P	
Unit I							
1	बहुकीविदा (bahoo ki vida)	**R 1-3 to 9 / T1-38 to 43**	BB	2	1		**9**
2	अन्धेरनगरी (andhear nagaree)	**R 1-9 to 18 / T1 -43 to 50**	BB	2	1		

Unit II							
1	कबीरकेदोहे (kabeer ke dohe)	**R 1-18,19 / T2-16**	BB	2	1		**9**
2	तुलसीकेदोहे (tulsi ke dohe)	**R 1-19,20 / T2-17**	BB	2	1		
3	रहीमकेदोहे (rahim ke dohe)	**R 1-21,22/ T1-18**	BB	2	1		
3	दर्जी और हाथी - Dharji aur haathi	**R 1-13/ T1-116&117**	BB	2	1		
Unit III							

1	संज्ञाकीपरिभाषाऔरभेद (sangya-pribhasha aur beadh)	**R 1-22,23 / T1-9**	BB	2	1		**9**
2	सर्वनामकीपरिभाषाऔरभेद (sarvanaam-pribhasha aur beadh)	**R 1-23,24 / T3-17 & 18**	BB	2	1		
3	विशेषणकीपरिभाषाऔरभेद (visheshan-pribhasha aur beadh)	**R 1-24,25/ T3-19 & 20**	BB	2	1		
		Unit IV					
1	बीजक (Invoice)	**R 1-26 to 28 / T4-67 & 68**	**BB**	2	1		**9**

2	परिचय देना – Self introduction(अपना परिचय देना, अपनेपरिवार औरअपने शहर के बारे में परिचय देना)	**R 1-28 to 33 / T4-223**	**BB**	2	1		

3	दूरभाष में बातचीत – Telephone conversation (Ordering food, medicine and some things over phone for home delivery, भोजनका आदेशऔर कुछ सामान, दवाईमँगवाने का आदेश)	**R 1-33 ,34 / T4-224**	**BB**	2	1		
Unit V							

1	संकेतों के सहारे लिखना Hints developing	**R 1- 34 to 37**	**BB**	2	**1**		**9**
2	नारे लिखना – slogan writing	**R 1- 37 to 40**	**BB**	2	**1**		

* L - Lecture T - Tutorial (Problems / Example Programs / Revision Classes) P - Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open educational resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDo), and Google Slides(GS) and Whiteboards(WB),Wikipedia (W) any other tools may also be included.
[Mark the abbreviation in the teaching aids column]

COURSE PLAN FOR CONTENT BEYOND SYLLABUS

SI.NO	Module	Lecture	Planned Topics	Date	Time	Total No of Hours Allotted
1	1	Lecture1	Translation			
2	2	Lecture2				
3	3	Lecture3				
4	4	Lecture 4				

Gaps in the Syllabus –To meet Industrial Requirements

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1	Framing words and sentences	Assignment		3
2		Seminar		
3		Peer teaching		
4	NA	Industrial Visit	NA	NA

Resources [Citation style differs for each Programme, Kindly use the citation style (APA, MLA etc) applicable for your domain. This has been advised by the University Nominees and Experts last time]

Reference Book	
R1	A Complied book, covering all the topics of the syllabus prepared by the Department of Hindi.

Text Books	
T1	प्रशनोत्तरसहितराष्ट्रभाषापाठ्यसामग्री | दक्षिणभारतहिन्दीप्रचारसभा, मद्रास | हिन्दीप्रचारप्रेस, त्यागरायनगर, चेन्नै:17, पहलासंस्करण - मई,2016: दूसरासंस्करण - मार्च,2017: मुद्रक |
T2	प्रशनोत्तरसहितराष्ट्रभाषापाठ्यसामग्री |दक्षिणभारतहिन्दीप्रचारसभा, मद्रास |हिन्दीप्रचारप्रेसत्यागरायनगर, चेन्नै:17,पहलासंस्करण - मई,2016:दूसरासंस्करण – मार्च,2017: मुद्रक |
T3	हिन्दीव्याकरणप्रवेशिका -1दक्षिणभारतहिन्दीप्रचारसभा, मद्रास |हिन्दीप्रचारप्रेस ,चेन्नै:17,पहलासंस्करण - सितम्बर,2011: दूसरासंस्करण - नवम्बर,2017: मुद्रक |
T4	Dr.K.M.Chandra Mohan. Hindi Vatayan. Viswavidhalaya Prakasan Chowk, Varanasi-221001:Print. 67 &68
Web Resources	
W1	http://hindi.swiftutors.com/hindi-self-introduction.html
W2	http://www.linguanaut.com/english_hindi.htm#ixzz6JaMa5AJR
E – Books /Library INFLIBNET RESOURCES	
E1	
E2	
E3	
E4	

Topics beyond Syllabus

M1	NA
M2	NA
M3	NA

PORTION FOR EXAMINATION			
Sl. No.	**Mode**	**Proposed Portions to be Covered**	**Proportion (Portion) in Percentage (to be decided by the Department)**
1	SLIP / CLASS TEST	UNIT - I	15%
2	I INTERNAL	UNIT - I, II, V	50%
3	II INTERNAL	UNIT - III, IV, V	50%
4	Summative Examination	ALL 5 UNITS	100%

ASSESSMENT METHODOLOGY – DIRECT					
	Yes/No	**Yes/No**	**Yes/No**	**Yes/No**	**Yes/No**
Internal Examination	Yes	Yes	Yes	Yes	Yes
Assignment	Yes	Yes	Yes	Yes	Yes
Slip Test / Class Test	Yes	Yes	Yes	Yes	Yes
Project	No	No	No	No	No
Summative Examination	No	No	No	No	No

Assessment Indirect			
	Yes/No	**Yes/No**	**Yes/No**
Assessment of Course Outcome by Student Feedback	**Yes**		
Feedback from Alumni	**No**		
Feedback from Educational Experts	**Yes**		
Feedback from Parents	**No**		

Prepared by

Designation	**Name**	**Signature**	**Date**
Course Coordinator / In-charges	**Mrs.S.Neela**		
Module Coordinator (One person who would coordinate all Courses in a Programme according to OBE)			

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	**Mrs.S.Neela**			
Dean Academics	**Dr.S.Priya**			

Principal	**Dr.R.Sujatha**			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme:	**B.Sc Animation, Viscom, CS, Networking, Food Science & Processing, and Fire & Industrial Safety**		
Course Name:	**General English IV**	**Course Code:**	**19UGE402**
Year / Semester	**IV**	**Section**	
Total No. of Students		**No. of Credits**	**3**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**45**
Course Teacher Name	**Mr. C. Senthil Kumar**		

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I–INTRODUCTION TO COMMUNICATION							
1	**Introduction**	**1 to 3**	**BB / PPT**	**1**	**1**		**2**
2	**Barriers & Types**	**3 to 5**	**BB / PPT**	**2**	**1**		**3**
3	**7C's of Communication**	**5 to 7**	**BB / PPT**	**2**	**2**		**4**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – II - WRITING							
4	**Resume Etiquettes**	**8 to 9**	**BB**	**3**			**3**
5	**Resume Writing**	**9 to 10**	**BB**	**3**			**3**
6	**Report Writing**	**10 to 14**	**BB**	**3**			**3**
UNIT – III - BODY LANGUAGE							
7	**Introduction: Body Language**	**15 to 16**	**VIDEO**	**2**	**1**		**2**
8	**Importance of Body Language in a Professional Atmosphere**	**16 to 18**	**VIDEO**	**2**	**1**		**3**
9	**Do's & Don'ts: Body Language**	**19 to 40**	**VIDEO**	**2**	**2**		**4**
UNIT – IV - PRESENTATION							
10	**Presentation & Its Types**	**41 to 43**	**VIDEO**	**3**			**3**
11	**Do's & Don'ts: Presentation Skills**	**43 to 46**	**VIDEO**	**3**			**3**
12	**Exercises on Presentation**	**47 to 49**	**VIDEO**	**3**			**3**
UNIT – V – SENTENCE CORRECTION							
13	**Correct Usage of Verbs & Adverbs** – Definition – Rules.	**50 to 52**	**BB / WS**	**2**	**1**		**3**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
14	**Correct Usage of Preposition:** Definition – Rules.	**53 to 57**	**BB / WS**	**2**	**1**		**3**
15	**Correct Usage of Conjunction & Interjection:** Definition – Rules	**57 to 61**	**BB / WS**	**2**	**1**		**3**
TOTAL HOURS							**45**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Course Material

18. General English IV. A Complied book, covering all the topics of the syllabus prepared by the Department of English.

Reference Books

19. SrivasanHema. **Communication Skills**. Bangalore: Frank Brothers & Co. Ltd, 2004. Print.

20. Wren & Martin. **High School English Grammar & Composition.** India: S.Chand& Company Ltd, 1995. Print.

21. G.RadhakrishnaPillai. **Emerald English Grammar and Composition**. Bangalore: Emerald Publisher, 1998. Print.

22. Dr.K.Alex. **Soft Skills.** New Delhi: S.Chand& Company Ltd, 1997. Print.

23. Dr. Gupta C.B. Business Correspondence & Reporting -Business Law, Business Correspondence & Reporting (CA-Foundation). New Delhi: Taxmann, 2018. Print.

24. A.P.Bhardwaj. **General English for Competitive Examinations**. New Delhi: Dorling Kindersley (India) Pvt. Ltd, 2013. Print.

25. Michael Swan. **Practical English Usage**. New Delhi: Oxford University Press,2008.Print

26. Randolph Quirck, Sidney Greenbaum, Geoffrey Leech, Jan Svartvik. **A Comprehensive Grammar of the English Language**. New Delhi: Dorling Kindersley (India) Pvt. Ltd, 2010. Print.

27. John Adair. **The Effective Communicator**. Noida: Anubha Printers. 2005. Print.

E – Books /Library INFLIBNET RESOURCES

28. https://nlist.inflibnet.ac.in/search/Record/EBC483375

29. https://nlist.inflibnet.ac.in/search/Record/EBC481114

30. https://nlist.inflibnet.ac.in/search/Record/EBC1864716

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Speaking Skill – Self Introduction		**3**	**HT**
2.	Reading Skill – Reading Activity		**2**	**HT**
3.	Speaking Skill – Assignment		**1**	**HB**

* Proposed Actions can be Assignments, Seminars, Peer Teaching, Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**1**		**Newspaper**	**Report writing Skills – Newspaper**	**1**
2	**2**		**Video Presentation**	**Professional Skills – Body language**	**1**
3	**3**		**Video Presentation**	**Professional Presentation Skills**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**I INTERNAL**	**Unit – I, II**	**40%**
2.	**II INTERNAL**	**Unit – III, IV**	**40%**
3.	**SLIP / CLASS TEST**	**Unit – V**	**20%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**C. Senthil Kumar**		

Approved by			
	Name	**Signature**	**Date**

HoD	**R.Suganthi Hepzibha**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Fundamentals of Fire Technology**	**Course Code :**	**20FS204**
Year / Semester	**I/II**	**Section**	**--**
Total No. of Students	**09**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**4**
Course Teacher Name	**Mr. P. Navaneethakrishnan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – IANATOMY OF FIRE							
1	**What is fire, Fire Triangle, Fire Tetrahedron, Life cycles theory of fire, Classification of fire (class A, B, C, D, electrical)**	**W1**		**1**			**1**
2	**Role and sources of Oxygen, fuel & heat**	**W1**		**1**			**2**
3	**Chain reaction & spontaneous combustion**	**W1**		**1**			**3**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
4	**Flash point**	**W3**		**1**			**4**
5	**Fire point**	**W3**		**1**			**5**
6	**Methods of extinguishment: cooling, smothering, blanketing and starvation**	**W2**		**1**			**6**
7	**Fire properties of common material**	**W2**		**1**			**7**
8	**Combustion**	**W2**		**1**			**8**
9	**Flaming and no flaming combustion**	**W2**		**1**			**9**
10	**How combustion originate –How combustion spread – How combustion terminated**	**W2**		**1**			**10**
11	**System safety analysis techniques (THERP), RISK Tolerability**	**W4**		**1**			**11**
12	**Work permit system**	**W5**		**1**			**12**
UNIT – IIFLAME SPREAD AND FIRE LOAD							
13	**Hazards of fire propagation**	**W6**		**1**			**13**
14	**Concept of separation and compartmentalization Types of flame (a. Smoldering - flaming, b. Deep seated - surface, c. Diffusion - premixed flame)**	**W6**		**1**			**14**
15	**Flame spread in solid, liquid and gases**	**W6**		**1**			**15**
16	**Types Of Gaseous Flames**	**W6**		**1**			**16**
17	**premixed vs. Diffusions Flames**	**W8**		**1**			**17**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
18	**Stationery Vs. Propagating Flames**	**W8**		**1**			**18**
19	**Radiation Flames**	**W8**		**1**			**19**
20	**Heat transfer in fire by conduction, convection and radiation.**	**W8**		**1**			**20**
21	**Burning rates**	**W7**		**1**			**21**
22	**Measurement of heat by using Bomb calorimeter**	**W8**		**1**			**22**
23	**Specific heat**	**W8**		**1**			**23**
24	**latent heat of vaporization**	**W8**		**1**			**24**
25	**calorific values**	**W8**		**1**			**25**
26	**Dulong formula**	**W8**		**1**			**26**
27	**Flame arrestor - principles**	**W8**		**1**			**27**
28	**Fire load (a. Definition of fire load, b. Calculation of fire load, c. Classification of fire load by values, d. Classification of occupancies by fire load) Need, concept methods of segregation**	**W7**		**1**			**28**
UNIT – IIIFIRE SAFETY IN BUILDING CONSTRUCTION							
29	**Main structural elements and parts of building**	**W 9**		**1**			**29**
30	**Material and fire resistance of construction materials(a. Stone, b. Brick, c. Concrete, d. Steel, e. Glass, f. Timber, g. Cast iron and wrought iron)**	**W 10**		**1**			**30**
31	**Classification of buildings based on occupancy as per NBC**	**W 11**		**1**			**31**
32	**Fire safety of building**	**W 12**		**1**			**32**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
33	**Fire resisting construction (a. Walls and columns, b. Floors and roofs, c. Wall and floor openings, d. Escape elements)**	**W 12**		**1**			**33**
34	**Study of high rise building and fire risk in buildings**	**W 12**		**1**			**34**
35	**Concept and importance of fire proofing using mortar, RCC, fireproofing coating, fire paints / mastics. and others materials**	**W 12**		**1**			**35**
UNIT – IVFIRE FIGHTING EQUIPMENT							
36	**Types of firefighting systems: water based, powder and gas based**	**W 13**		**1**			**36**
37	**Active and passive fire protective systems**	**W 13**		**1**			**37**
38	**Types of extinguishers: water CO2, CO2, Foam, DCP, Halon, Soda Acid**	**W 13**		**1**			**38**
39	**Detailed study of extinguishers body construction, operation, maintenance, testing & recharging**	**W 13**		**1**			**39**
40	**Fire doors, Fire proofing materials, Dampers, Wired glass windows**	**W 14**		**1**			**40**
41	**Position of extinguishers, fire blankets, fire buckets and hose reel hose**	**W 14**		**1**			**41**
42	**Types of detectors, Use and operation**	**W 14**		**1**			**42**
43	**Types of fire alarm system**	**W 14**		**1**			**43**
44	**Basic theory on Construction of Detectors and Alarm System**	**W 14**		**1**			**44**
45	**Fire alarm & its technical specifications.**	**W 14**		**1**			**45**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – VFIRE SERVICE MANAGEMENT							
46	**Intro to FSM**	**W 15**		**1**			**46**
47	**On-site and off-site emergency planning**	**W 16**		**1**			**47**
48	**FM 200, Inergen - Application and properties and operation of gaseous systems**	**W 17**		**1**			**48**
49	**HFC-227ea brief introduction & Novec 1230**	**W 17**		**1**			**49**
50	**Introduction to types of gaseous systems**	**W 18**		**1**			**50**
51	**CO2, - Application and properties and operation of DCP systems**	**W 19**		**1**			**51**
52	**Ventilation and its types**	**W 20**		**1**			**52**
53	**Effect of wind, stack in ventilation system Detailed Study of Valves, Ladders and Breathing Apparatus Set**	**W 20**		**1**			**53**
54	**Fire Safety Regulations In India - 2019**	**W 21**		**1**			**54**
TOTAL HOURS							**54**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

Reference Books

6. *Oil industry safety directorate Training manual.* (n.d.). Oil industry safety directorate Govt. of India.

7. *Oil and gas international certification*. (n.d.). NEBOSH.

Web Resources

1. W1- https://en.wikipedia.org/wiki/Fire

2. W2 - https://indianapublicmedia.org/amomentofscience/anatomy-flame/#:~:text=Fire%20is%20a%20chemical%20reaction,light%20that%20we%20call%20fire.&text=This%20is%20called%20the%20%22combustion,t%20burn%20up%20right%20away

3. W3 - https://www.pharmaceuticalonline.com/doc/flash-fire-and-autoignition-points-demystifie-000

4. W4 - https://en.wikipedia.org/wiki/Technique_for_human_error-rate_prediction

5. W5 - https://en.wikipedia.org/wiki/Permit-to-work#:~:text=Permit%2Dto%2Dwork%20(PTW,is%20done%20safely%20and%20efficiently.&text=A%20permit%20to%20work%20system,check%20safety%20at%20each%20stage

6. W6 - https://cwc.ca/why-build-with-wood/safe/fire-safety/flame-spread/#:~:text=Flame%20spread%20is%20primarily%20a,one%20material%20compared%20to%20another

7. W7 - https://en.wikipedia.org/wiki/Flame

8. W8 -

https://en.wikipedia.org/wiki/Fire_loading#:~:text=The%20fire%20loading%20of%20a,for%20evaluating%20industrial%20safety%20risks

9. W9 - https://en.wikipedia.org/wiki/Fire_safety#:~:text=Fire%20safety%20is%20the%20set,the%20destruction%20caused%20by%20fire.&text=Fire%20safety%20measures%20include%20those%20that%20are%20planned%20during%20the,to%20occupants%20of%20the%20building

10. W 10- https://en.wikipedia.org/wiki/Fire_safety#:~:text=Fire%20safety%20is%20the%20set,the%20destruction%20caused%20by%20fire.&text=Fire%20safety%20measures%20include%20those%20that%20are%20planned%20during%20the,to%20occupants%20of%20the%20building

11. W 11 - https://housing.com/news/national-building-code-india-residential-apartments/#:~:text=The%20National%20Building%20Code%20(NBC)%20is%20a%20document%20that%20provides,spaces%20or%20even%20hazardous%20buildings

12. W 12 - https://www.safelincs.co.uk/fire-safety-on-construction-sites/

13. W 13 - https://en.wikipedia.org/wiki/Active_fire_protection

14. W 14 - https://en.wikipedia.org/wiki/Passive_fire_protection

15. W 15 - https://www.usfa.fema.gov/operations/

16. W 16 - https://dish.tn.gov.in/assets/pdf/EmergencyPlan-On-SiteAndOff-Site.pdf

17. W 17 - https://en.wikipedia.org/wiki/Gas

18. W 18 - http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch4/properties2.html

19. W 19 - https://product.autronicafire.com/fileshare/fileupload/16058/20-1162012-600%20Technical%20DCP%20RB.pdf

20. W 20 - https://en.wikipedia.org/wiki/Ventilation_(firefighting)#:~:text=Ventilation%20is%20a%20part%20of,individuals%20and%20attack%20the%20fire

21. W 21 - https://www.drishtiias.com/daily-updates/daily-news-editorials/fire-safety-regulations-in-india

Gaps in the Syllabus

SL.	Name of the Topic	PROPOSED	No of Hours	Hours with in the Time Table (HT) /

NO		ACTION	Allotted	Hours beyond the Time Table (HB)
1.	Work permit system	Lecturer	01	HB
2.	Fire Safety Regulations In India - 2019	Lecturer	01	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	I	Lecture	PPT	Fire safety of building	1
2	III	Lecture	PPT	Classification of buildings based on occupancy as per NBC	1

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit – I	20%
2.	I INTERNAL	Unit – I, II, III (up to Classification of buildings based on occupancy as per NBC)	50%
3.	II INTERNAL	Unit – III (fromFire safety of building) , IV, V	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by

	Name	Signature	Date
Course Coordinator / In-charge	**Mr.P.Navaneethakrishnan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Construction Safety**	**Course Code :**	**20FS205**
Year / Semester	**I/II**	**Section**	**--**
Total No. of Students	**24**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**45**
Course Teacher Name	**Mr. V.Dhamotharan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I CONSTRUCTION SAFETY							
1	**Introduction to construction industry &**	**W1**		**1**			**1**
2	**Safety issues in construction**	**W1**		**1**			**2**
3	**Human safety in construction safety management**	**W1**		**1**			**3**
4	**Roles of various groups stake holders in ensuring safety in construction industry**	**W1**		**2**			**5**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	**Safety parameters such as site planning and layout, safe access, good housekeeping**	**W1**		**1**			**6**
6	**Safe movement of people in the workplace, hazards to pedestrians**			**1**			**7**
7	**Requirement of good lighting and ventilation**			**1**			**8**
8	**Relevance of ergonomics in construction safety**	**W1**		**1**			**9**
UNIT – II HAZARDS OF CONSTRUCTION AND PREVENTION							
9	**Excavations**	**W2**		**1**			**10**
10	**Basement and wide excavation, trenches, shafts**	**W2**		**1**			**11**
11	**Scaffolding, types**	**W2**		**1**			**12**
12	**Causes of accidents, scaffolding inspection checklist**	**W2**		**1**			**13**
13	**Hazards and control measures for excavation activity**	**W2**		**1**			**14**
14	**False work, erection of structural frame work, dismantling**	**W2**		**1**			**15**
15	**Tunneling, blasting, pre blast and post blast inspection**			**1**			**16**
16	**Confined spaces, working on contaminated sites**			**1**			**17**
17	**Work over water, road works, power plant construction**			**1**			**18**
18	**Construction of high rise buildings**			**1**			**19**
UNIT– III WORK AT HEIGHTS							
14	**Fall protection in construction OSHA 3146**	**W3**		**1**			**20**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
15	**OSHA requirement for working at heights**	**W3**		**1**			**21**
16	**Safe access and egress, safe use of ladders**	**W3**		**1**			**22**
17	**Scaffoldings, requirement for safe work platforms**	**W3**		**1**			**23**
18	**Stairways, gangways and ramps**	**W3**		**1**			**24**
19	**Fall prevention and fall protection, safety belts, safety nets**	**W3**		**1**			**25**
20	**Fall arrestors, controlled access zones, safety monitoring systems**	**W3**		**1**			**26**
21	**Working on fragile roofs, work permit systems**	**W3**		**1**			**27**
22	**Height pass accident case studies.**	**W3**		**1**			**28**
UNIT – IV CONSTRUCTION MACHINERY							
23	**Selection, operation, inspection and testing of hoisting cranes**	**W4**		**1**			**29**
24	**Mobile cranes, tower cranes, crane inspection checklist**	**W4**		**1**			**30**
25	**Builder's hoist, winches, chain pulley blocks**	**W4**		**1**			**31**
26	**Use of conveyors, concrete mixers, concrete vibrators**	**W4**		**1**			**32**
27	**Safety in earth moving equipment, excavators, dozers, loaders, dumpers, motor grader, concrete pumps**	**W4**		**1**			**33**
28	**Welding machines, use of portable electrical tools, inspection methods for portable electrical tool and machinery**	**W4**		**1**			**34**
29	**Drills, grinding tools, manual handling scaffolding, hoisting cranes**	**W4**		**1**			**35**
30	**Use of conveyors and mobile cranes**	**W4**		**1**			**36**
31	**Manual handling**	**W4**		**2**			**38**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – V SAFETY IN DEMOLITION WORK							
33	**Safety in demolition work, manual, mechanical, using explosive**	**W5**		**1**			**39**
34	**Keys to safe demolition, pre survey inspection**	**W5**		**1**			**40**
35	**Method statement, site supervision, safe clearance zone**	**W5**		**1**			**41**
36	**Health hazards from demolition**	**W5**		**1**			**42**
37	**Indian standard, trusses, girders and beams**	**W5**		**1**			**43**
38	**First aid, fire hazards and preventing methods**	**W5**		**1**			**44**
39	**Interesting experiences at the construction site against the fire accidents.**	**W5**		**1**			**45**
TOTAL HOURS							**45**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes)P – Practical

Reference Books

2.

Web Resources

31. W1- https://www.slideshare.net/HemantKumar98/occupational-health-and-safety-139535565
32. W2- https://www.slideshare.net/jaboink/occupatinal-health-hazards
33. W3- https://www.slideshare.net/search/slideshow?searchfrom=header&q=INDUSTRIAL+SANITATION
34. W4- https://www.slideshare.net/shas595/respiratory-diseases-2834774
35. W5- https://www.slideshare.net/JasmineJohn/work-physiology-12957808

E – Books /Library INFLIBNET RESOURCES

3. Occupational health psychology: work, stress, and health – Schonfeld, Irvin sam.
4. Occupational safety and health management – sad, alwi.

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	**Occupational rehabilitation**	**Assignments**	**01**	**HB**

2.	**Musculoskeletal disorders**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Learning from Accidents**	**1**
2	**III**	**Lecture**	**PPT**	**Musculoskeletal disorders**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to fall prevention and fall protection)**	**50%**
3.	**II INTERNAL**	**Unit – III (safety belts) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.V.Dhamotharan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Work Study and Ergonomics**	**Course Code :**	**20FS206**
Year / Semester	**I/II**	**Section**	**--**
Total No. of Students	**09**	**No. of Credits**	**5**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**4**
Course Teacher Name	**Mr.B.Satheeshprabu**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I WORK STUDY							
1	**Study of operations**	**W1**		**1**			**1**
2	**work content**	**W1**		**1**			**2**
3	**work procedure**	**W1**		**1**			**3**
4	**breakdown**	**W1**		**1**			**4**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	**human factors**	**W2**		**1**			**5**
6	**safety and method study**	**W2**		**1**			**6**
7	**methods and movements at the workplace**	**W2**		**1**			**7**
8	**substitution with latest device**	**W1**		**1**			**8**
9	**robotic concepts &applications in hazardous workplaces**	**W2**		**1**			**9**
10	**productivity, quality and safety (PQS)**	**W2**		**1**			**10**
UNIT – II ERGONOMICS							
11	**Definition & applications of ergonomic principles in the shop floor**	**W2**		**1**			**11**
12	**work benches**	**W2**		**1**			**12**
13	**seating arrangements**	**W1**		**1**			**13**
14	**layout of electrical panels**	**W1**		**1**			**14**
15	**switch gears**	**W1**		**1**			**15**
16	**principles of motion economy**	**W1**		**1**			**16**
17	**location of controls**	**W3**		**1**			**17**
18	**display locations – machine foundations**	**W3**		**1**			**18**
19	**work platforms, fatigue, physical and mental strain**	**W3**		**1**			**19**
20	**physiology of workers – RULA tool.**	**W3**		**1**			**20**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – III PERSONAL PROTECTION							
21	**Concepts of personal protective equipment**	**W3**		**1**			**21**
22	**types**	**W3**		**1**			**22**
23	**selection of PPE**	**W3**		**1**			**23**
24	**invisible protective barriers**	**W3**		**1**			**24**
25	**procurement, storage,**	**W3**		**1**			**25**
26	**inspection and testing**	**W3**		**1**			**26**
27	**quality**	**W3**		**1**			**27**
28	**standards**	**W3**		**1**			**28**
29	**ergonomic considerations in personal protective equipment design.**	**W3**		**1**			**29**
30	**ergonomic considerations in personal protective equipment design.**	**W3**		**1**			**30**
UNIT – IV PROCESS AND EQUIPMENT DESIGN							
31	**Process design – equipment – instrument – selection**	**W5**		**1**			**31**
32	**concept modules**	**W5**		**1**			**32**
33	**various machine tools**	**W5**		**1**			**33**
34	**in-built safety & machine layout**	**W5**		**1**			**34**
35	**safety devices and methods**	**W5**		**1**			**35**
36	**selection, inspection, maintenance and safe usage**	**W4**		**1**			**36**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
37	**selection, inspection, maintenance and safe usage**	**W4**		**1**			**37**
38	**statutory provisions,**	**W4**		**1**			**38**
39	**operator training and supervision**	**W5**		**1**			**39**
40	**hazards and prevention.**	**W5**		**1**			**40**
UNIT – V MAN MACHINE SYSTEM							
41	**Job and personal risk factors**	**W6**		**1**			**41**
42	**standards-selection and training**	**W8**		**1**			**42**
43	**body size and posture body dimension (static/dynamic)**	**W6**		**1**			**43**
44	**adjustment range – penalties**	**W6**		**1**			**44**
45	**guide lines for safe design and postures**	**W6**		**1**			**45**
46	**evaluation and methods of reducing posture strain.**	**W7**		**1**			**46**
47	**Man-machine interface-controls - types of control**	**W8**		**1**			**47**
48	**identification and selection-types of displays**	**W7**		**1**			**48**
49	**compatibility and stereotypes of important operations**	**W8**		**1**			**49**
50	**fatigue and vigilance measurement characteristics and strategies for enhanced performance.**	**W8**		**1**			**50**
TOTAL HOURS							**50**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

Reference Books

36. "Introduction to Work Study", ILO, Oxford and IBH Publishing company, 3rd edition, 2008.

37. McCormick. E.J and Sanders.M.S. "Human Factors in Engineering and Design", 7th edition, McGraw Hill education, 1993.

38. Benjamin Neibal. W, "Motion and Time Study", 7th Edition

Web Resources

39. W1- https://nptel.ac.in/courses/112/107/112107249/

40. W2 - https://nptel.ac.in/courses/112/104/112104222/

41. W3 - https://www.ishn.com/blogs/16-thought-leadership/post/98413-why-should-ppe-be-ergonomic-top-five-reasons

42. W4 - https://nptel.ac.in/courses/103/103/103103027/

43. W5 - http://www.msubbu.in/ln/design/

44. W6 - http://www.egyankosh.ac.in/bitstream/123456789/31718/1/Unit-15.pdf

45. W7 - https://pdfs.semanticscholar.org/052d/a51636ffbdf75c5a504f9769593ea8c34be6.pdf

46. W8 - https://www.yourarticlelibrary.com/ergonomics/man-machine-systems-design-characteristics-and-classification/34636

E – Books /Library INFLIBNET RESOURCES

47. **WORK STUDY AND ERGONOMICS /BY SINGH, LAKHWINDER P.,PUBLISHED 2016**

48. **ERGONOMICS AND HEALTH ASPECTS OF WORK WITH COMPUTERS INTERNATIONAL CONFERENCE, EHAWC 2009, PUBLISHED 2009**

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	**Importance of Computer Ergonomics**	**Assignments**	**01**	**HB**
2.	**Introduction of Process deto oil and gas Industries**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Work study Design**	**1**
2	**III**	**Lecture**	**PPT**	**Plant Layout Design**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to invisible protective barriers)**	**50%**

3.	**II INTERNAL**	**Unit – III (from procurement) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.B.Satheeshprabu**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme:B.Sc Fire and Industrial Safety

Title of the Course : Fire Fighting & Field Training **Course Code :** 20FS207

Year / Semester : I / II **Section:** **Total No. of Students :** 09

No of Credits : 2 **Total No. of Contact Hours :** 30**Course Teacher (s) Name :** Mr. P. Navaneethakrishnan **Corresponding lab Paper : No**

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
21.		1	Alerting the men in case out Break of Fire.	-	-	-	2	2

22.		2	Demonstration of Hoses, Couplings, Dividing, Collecting Breechings, Hose reel with Nozzle, Hose Box, etc.,.	-	-	-	2	4
23.		2	Drill with Charged Fire Hoses.	-	-	-	2	6
24.		3	Operation, Refilling, Maintenance of portable and Non Portable Fire Extinguishers.	-	-	-	2	8
25.		4	Firemen Out Fit.	-	-	-	2	10
26.		5	Fire Fighting, Oil Fire, Electrical Fire, Gas Fire “BLEVE”.	-	-	-	2	12
27.		6	Lifting, Moving with Casualty.	-	-	-	2	14
28.		7	Operation of Fixed Fire Fighting Installation.	-	-	-	2	16
29.		8	Fire Tenders (Water Tender, Foam Tender & Foam Crash Tender).	-	-	-	2	18
30.		9	Video Programme (Method of Fire Fighting, Fire Extinguishers, Fire Fighting Appliances.	-	-	-	2	20
31.		10	Drill with smoke Entry Wearing SCBA.	-	-	-	2	22
32.		11	Care and Maintenance of Fire Fighting Appliances.	-	-	-	2	24
33.		12	Self Contained Breathing Apparatus.	-	-	-	2	26
34.		12	Pump & Pump Operation.	-	-	-	2	28

35.		13	Knots & Lines and Their Uses.				1	29
36.		14	Practical Examination and Final Assessment.				1	30
Total								30

Include Lab manual details and mode of assessment direct and indirect

Designation	**Prepared by**		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	Mr. P.Navaneethakrishnan		
Module Coordinator (one person who would coordinate all Courses in a Programme according to OBE)	Mr. A.Jaiveer Kumar		

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	Mr.I.Vivek Ramkumar			
Dean Academics	Dr. S. Priya			
Principal	Dr. R. Sujatha			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**B.Sc(F&IS)**	**Programme Code :**	**FS1061**
Course Name :	**Safety in chemical Industries**	**Course Code :**	**20FS203**
Year / Semester	**I/II**	**Section**	**-**
Total No. of Students	**9**	**No. of Credits**	**4**
Corresponding lab Paper	**Yes / No**	**Total No. of Contact Hours**	**50**
Course Teacher Name	**R.Brameshwaran**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – ICHEMICALS AND THEIR CLASSIFICATION							
1	Hazardous chemical classification-	**W1**	**BB**	**2**			**2**
2	Chemical abstract services function-	**W2**	**PPT**	**1**	**1**		**4**
3	Globally Harmonized system of chemical classification -	**W3**	**W,PPT**	**1**	**1**		**6**
4	Classification of Hazardous chemicals-REACH –	**W3**	**W,PPT**	**1**	**1**		**8**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	Chemical Legislations	**W1**	**BB**	**2**			**10**
UNIT – IIOPERATION AND MAINTENANCE OF CHEMICAL INDUSTRY							
6	Evolution of an Industry -	**W1**	**PPT**	**2**			**12**
7	Safety in operation and maintenance	**W3**	**PPT,WS**	**1**	**1**		**14**
8	Exposure of personnel, Operational activities and hazards –	**W3**	**PPT,WS**	**1**	**1**		**16**
9	Description of Different Unit process and Unit operations	**W1**	**BB**	**2**			**18**
10	Work permits systems entry into confined space where toxic contaminants are present.	**W3**	**WS,PPT**	**1**	**1**		**20**
UNIT – IIISTORAGE AND HANDLING OF CHEMICALS							
11	Safety in storage and Handling of chemical and gases	**W1**	**PPT,WS**	**1**	**1**		**22**
12	Hazards during transportation	**W3**	**BB**	**1**	**1**		**24**
13	pipeline transport	**W4**	**PPT**	**2**			**26**
14	Safety in chemical laboratories.	**W2**	**PPT**	**2**			**28**
15	Seminar/quiz/ TEST		**WS**		**2**		**30**
UNIT – IVEMERGENCY PREPAREDNESS IN CHEMICAL INDUSTRIES							
16	Toxic release and control methodologies	**W3**	**W**	**1**	**1**		**32**
17	toxic effects	**W2**	**PPT**	**2**			**34**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
18	threshold limit values	**W3**	**BB**	**2**			**36**
19	Awareness and preparedness for energy at local level Specific safety consideration for Cement, paper, pharmaceutical, petroleum, petrochemical, rubber, fertilizer and distilleries	**W3**	**PPT**	**2**			**38**
20	Seminar/quiz/ TEST		**WS**		**2**		**40**
UNIT – VSAFETY IN NUCLEAR POWER PLANT							
21	Safety in nuclear plants - Objectives and concepts , technical requirements, safety functions	**W5**	**V,PPT**	**2**			**41**
22	accident prevention and plant safety characteristics , radiation protection	**W3**	**WS**	**1**	**1**		**43**
23	Plant design	**W5**	**W,V,PPT**	**2**			**44**
24	design for reliability of structures, systems and components, human factors	**W5**	**BB**	**2**			**46**
25	Safety analysis, safety requirements for reactor core and associated features	**W5**	**WS,PPT**	**2**			**48**
26	coolant system, containment system	**W5**	**V,PPT**	**2**			**49**
27	Waste treatment and control systems, fuel handling and storage systems.		**WS**	**2**			**50**
TOTAL HOURS							**50**

Reference Books

1. *Accident prevention manual for industrial operations: Administration and programs*. (1988). Washington: National Safety Council.

2. *Accident prevention manual for industrial operations: Administration and programs*. (1988). Washington: National Safety Council.

Web Resources

49. https://www.chemicalsafetyfacts.org/

50. https://www.hse.gov.uk/

51. https://www.osha.gov/

52. http://www.hrdp-idrm.in/

53. https://www.world-nuclear.org/

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Chemical Industries Case study	Assignment	2	HB
2.	Sop for various types Industries	Assignment	2	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, and Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**2**	**L**	**PPT**	**MSDS and SOP**	**1**
2	**3**	**L**	**PPT**	**Emergency Response during Chemical Explosion**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Hazard during transportation)**	**50%**
3.	**II INTERNAL**	**Unit – III (from Pipe Line transport) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.R.Brameshwaran A.P**		
Programme Coordinator	**Mr.A.Jaiveer Kumar A.P**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar A.P**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE, MADURAI DEPARTMENT OF FIRE & INDUSTRIAL SAFETY

Academic Year: 2020-21/IV Sem (EVEN) Class: B.Sc-II(F&IS)

S.NO	Course Code	Course	Staff Name	Dept
1	19UH401	Hindi IV	Mrs.M.Neela	Hindi
2	19UGE402	English IV	Mr.V.V.Sundaram	English
3	19FS403	Safety legislations and Standards	Mr.A.Jaiveer Kumar	F & IS
4	19FS404	Transport safety	Mr.I.Vivek Ramkumar	F & IS
5	19FS405	Occupational Health and Hygiene	Mr.V.Dhamotharan	F & IS
6	19FS406	**Elective** Safety in Oil and Gas Industries	Mr.P.Navaneethakrishnan	F & IS
7	19UBT410/ 19UBT411	Non Major Elective: Basic Tamil/Advanced Tamil	Mrs.H.Geetha/ Ms.RS.Sailakshmi	Tamil
8	19FS410	Industrial Plant Layout & Work Shop Safety lab	Mr.B.Satheeshprabu	F & IS
9	19FS411	Scaffolding & Work at height lab	Mr.V.Dhamotharan	F & IS

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme :	**B.Sc Animation, Viscom, CS, Networking, Food Science & Processing, Fire & Industrial Safety and Marine Catering Hotel Management,B.Com B&I,Honors and ACCA**		
Course Name :	**HindiIV**	**Course Code :**	**19UH401**
Year / Semester	**II / IV**	**Section**	
Total No. of Students		**No. of Credits**	**3**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**45**
Course Teacher Name	**Mrs.S.Neela**		

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I**हिन्दीसाहित्यका इतिहास**History of Ancient and medievalHindi literature							
1	आदिकाल **Adhikaal - Prithiviraj raso.**	**CM-02**	**BB / PPT**	**3**	**2**		**5**
2	भक्तिकालBhakthikaal – Nirgun Bakthi and	**CM-7**	**BB / PPT**	**2**	**2**		**4**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
	Sagun Bakthi						
UNIT – II - **नैतिक कविताएं**(Ethical poem)							
3	कठ-पुतली है या जीवन है | (kttputhleehaiyajeevanhai)	**CM-9**	**BB / PPT**	**1**	**1**		**2**
4	माँ (Maa)	**CM-10**	**BB / PPT**	**1**	**1**		**2**
5	एक आशीर्वाद (Eakhaasheervadh)	**CM-11**	**BB / PPT**	**1**	**1**		**2**
UNIT – III - **व्याकरण**(Grammar)							
9	क्रियाverb	**CM-13**	**BB / PPT**	**3**	**1**		**4**
10	संबंधबोधकsambandhbodhak	**CM-14**	**BB / PPT**	**3**	**1**		**4**
11	समुच्चयबोधकsamuchayabodhak	**CM-15**	**BB / PPT**	**2**	**1**		**3**
UNIT – IV - **पर्यटन- Tourism**							
12	**रामेश्वरम** – Rameshwaram	**CM-16**	**BB / PPT**	**1**	**1**		**2**

Sl. No.	TOPIC	Course Material Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
13	ताजमहल – The Taj Mahal	**CM-17**	**BB / PPT**	**1**	**1**		2
14	मदुरै - Madurai	**CM-17**	**BB / PPT**	**1**	**1**		2
15	श्रीनगर – Shri Nagar	**CM-18**	**BB / PPT**	**1**	**1**		2
16	कन्याकुमारी - Kanyakumari	**CM-19**	**BB / PPT**	**1**	**1**		2
UNIT – V – **अनुवाद** - Translation							
17	हिन्दी से अंग्रेज़ी में अनुवाद	**CM-15**	**BB / PPT**	**8**	**1**		**9**
TOTAL HOURS							**45**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Course Material

54. Hindi IV. A Complied book, covering all the topics of the syllabus prepared by the Department of Hindi.

Reference Books

8. **Webliography**

   http://archive.mu.ac.in/myweb_test/TYBA%20study%20material/Hindi%20Sahitya%20Ka%20Etihas.pdf

9. हिन्दी प्रचार वाहिनी-3दक्षिण भारत हिन्दी प्रचार सभा, मद्रास हिन्दी प्रचार प्रेस त्यागराय नगर, चेन्नै:17पहला संस्करण– अक्तूबर,2018 दूसरा संस्करणजुलई,2019: मुद्रक |Page nos. 14, 15, 18

10. R.Janakaja, Shabari Hindi vyakaran, Shabari Book House,37-First agrahaaram,Salem, First edition -2005:Print

11. Dr.K.M.Chandra Mohan. Hindi Vatayan. Viswavidhalaya Prakasan Chowk, Varanasi-221001:Print

12. प्रश्नोत्तर सहित मध्यमा पाठ्य सामग्री, दक्षिण भारत हिन्दी प्रचार सभा, हिन्दी प्रचार प्रेस ,चेन्नै:17,पहला संस्करण- जून, 2018नौवाँ पुनर्मुद्रण – जून , 2019: मुद्रक | Pages no. 177 and 178 (1 to 6)

Gaps in the Syllabus

SL. NO	Name of the Topic	Proposed Action	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Speaking Skill – Self Introduction		2	HT
2.	Reading Skill – Reading Activity		2	HT
3.	Speaking Skill – Assignment		1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, and Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	SLIP / CLASS TEST	Unit – IV	20%
2.	I INTERNAL	Unit – I(Chapter 1), IV, V	50%
3.	II INTERNAL	Unit – I (Chapter 2) , II, III	50%
4.	End Semester Examination	Unit I to V	100%

Designation	Prepared by		
	Name	Signature	Date
Course Coordinator / In-charge	S.Neela		

Approved by			
	Name	Signature	Date
HoD	S.Neela		
Dean Academics	Dr.S.Priya		
Principal	Dr.R.Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**B.Sc (Fire and Industrial Safety)**	**Programme Code :**	**FS1061**
Course Name :	**Safety Legislation and Standards**	**Course Code :**	**19FS403**
Year / Semester	**2020-2021 / IV**	**Section**	**—**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No.**	**Total No. of Contact Hours**	**50**
Course Teacher Name	**Jaiveer Kumar.A**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I							
	THE FACTORIES ACT 1948						
1	The Factories Act, 1948 (Amended) and Rules & Tamilnadu Factories Rules 1950	**R1-337**	**PPT**	**1**			**1**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
2	Factories Act	**R1-337**	**PPT**	**1**	**1**		**2**
3	Provisions under the Act and Rules made there under with Amendments Case Laws under the Factories Act.	**R1-337**	**LCD**	**1**			**1**
UNIT – IISOCIAL SECURITY LEGISLATIONS							
1	Workmen's Compensation Act and Rules.	**R1-997**	**PPT**	**1**	**1**		**2**
2	ESI Act and Rules.	**R1-158**	**PPT**	**1**			**1**
3	Contract Labour (Abolition and Regulation) Act.	**R1-131**	**PPT**	**1**			**1**
4	Public Liability Insurance Act.	**R1-870**	**PPT**	**1**			**1**
5	Trade union Act.	**R1-889**	**PPT**	**1**			**1**
6	Child Labour Act.	**R1-1088**	**PPT**	**1**			**1**
UNIT – IIIOTHER ACT AND RULES							
1	Indian Boilers Act, 1923	**R1-1062**	**PPT**	**1**	**1**		**2**
2	Indian Electricity Act, 2000 and Rules,	**W**	**PPT**	**1**			**1**
3	Indian Explosives Act, 1984 and Rules.	**W**	**PPT**	**1**			**1**
4	Petroleum Act and Rules.	**W**	**PPT**	**1**			**1**
5	Gas Cylinders Rules.	**W**	**LCD**	**1**			**1**
6	The Insecticides Act.	**W**	**PPT**	**1**			**1**
7	Pesticides Act &Rules.	**W**	**PPT**	**1**			**1**
8	Radiation Protection Rules.	**R1-**	**PPT**	**1**			**1**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
9	Hazardous Material Transportation Rules	**R1-**	**PPT**	**1**			**1**
10	Static and Mobile (Unfired) Pressure Vessel Rules,1981 as amended in 2000.	**R1-**	**PPT**	**1**			**1**
11	The Dock Workers (Safety, Health & Welfare) Act 1996 and Rules and Regulations	**R1-149**	**LCD**	**1**			**1**
12	BOCW Act.	**R1-82**	**PPT**	**1**	**1**		**2**
UNIT – IVENVIRONMENTAL PROTECTION ACTS							
1	Environmental Protection	**R1-305**	**LCD**	**1**	**1**		**2**
2	Water (Prevention & Control of Pollution) Act, 1974 and Rules.	**R1-919**	**PPT**	**1**	**1**		**2**
3	Air (Prevention & Control of Pollution) Act, 1981 and 1982 and Rules.	**R1-1**	**PPT**	**1**			
4	Motor Vehicles Act, 1988 as amended in 2000.	**R1-731**	**PPT**	**1**			
5	The Central Motor Vehicles Rules, 1989 as amended in 2000.	**R1-731**	**PPT**	**1**			
6	The Tamilnadu Motor Vehicles Rules, 1989 and Transport of Hazardous Goods Rules. -	**R1-731**	**LCD**	**1**			
7	Environment Protection Act, 1986 and Rules.	**R1-**	**PPT**	**1**			
8	Noise Pollution Act, 1998.	**R1-**	**PPT**	**1**			
9	Biomedical Waste,	**R1-**	**PPT**	**1**			
10	Hazardous Waste Management Rules	**R1-**	**PPT**	**1**	**1**		**2**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – V INTERNATIONAL ACTS AND STANDARDS							
1	OSHA Act	**R2**	**PPT**	**1**	**1**		**2**
2	HASAWA Act	**R2**	**PPT**	**1**	**1**		**2**
3	ANSI Act	**R2**	**PPT**	**1**			**1**
4	OHSAS 18001	**R2**	**PPT**	**1**	**1**		**2**
5	ISO 9001	**R2**	**PPT**	**1**			**1**
6	ISO 14001	**R2**	**PPT**	**1**			**1**
7	William Streiger act 1990	**R2**	**LCD**	**1**			**1**
TOTAL HOURS							

Reference Books

55. Mallick, M. R. (2017). *Labour & industrial law manual*. Delhi: Professional Book.

56. *Occupational Safety and Health Act*. (december 29, 1970). Public Law 91-596.

Web Resources

57. https://www.safetyinfo.com

58. https://www.osha.gov

E – Books /Library INFLIBNET RESOURCES

59. https://nlist.inflibnet.ac.in/search/Record/978-1-4020-3776-4

60. https://nlist.inflibnet.ac.in/search/Record/978-3-642-28681-0

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	ANSI	Assignments	1	HB
2.	OHSAS 45001	Assignments	1	HB

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**3**	**PPT**	**W**	**Motor Vehicles act**	**1**
2	**3**	**PPT**	**W**	**Industrial Disputes**	**1**
3	**2**	**PPT**	**W**	**Weekly Holidays Act**	**1**
4	**2**	**PPT**	**W**	**Child Labour Act**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Gas Cylinders Rules)**	**50%**
3.	**II INTERNAL**	**Unit – III (from The Insecticides Act) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	Jaiveer kumar.A		
Programme Coordinator	Jaiveer kumar.A		

Approved by			
	Name	**Signature**	**Date**
HoD	I.Vivek Ramkumar		
Dean Academics	Dr.S.Priya		
Principal	Dr. R. Sujatha		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN 2020–2021 (EVEN SEMESTER)

Name of the Programme	**Fire and Industrial Safety**	**Programme Code**	**FS1061**
Course Name	**Transport Safety**	**Course Code**	**19FS404**
Year / Semester	**II / IV**	**Section**	**B.Sc**
Total No. of Students	**22**	**No. of Credits**	**3**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**4**
Course Teacher Name	**I.VIVEK RAMKUMAR**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – ITRANSPORTATION OF HAZARDOUS GOODS							
61.	Transport emergency card (TREM)			**1**			**1**
62.	Driver training	**R1-401**		**1**			**2**
63.	Parking of tankers on the highways	**R1-450**		**1**			**3**
64.	Speed of the vehicle	**R1-407**		**1**			**4**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
65.	Warning symbols	**R2-31**			**1**		**5**
66.	Design of the tanker lorries	**R2-34**		**1**			**6**
67.	Static electricity responsibilities of driver	**R2-31**		**1**			**7**
68.	Inspection and maintenance of vehicles	**R1-363**		**1**			**8**
69.	Check list	**R1-360**			**1**		**9**
70.	Loading and decanting procedures and communication	**R1-360**		**1**			**10**
UNIT – IIROAD SAFETY							
71.	Introduction	**R1-23**		**1**			**11**
72.	Factors for improving safety on roads	**R1-42**		**1**			**12**
73.	Causes of accidents due to drivers and pedestrians	**R1-51**		**1**			**13**
74.	Design, selection, operation of motor trucks	**R1-79**		**1**			**14**
75.	Maintenance of motor trucks	**R1-123**		**1**			**15**
76.	Preventive maintenance	**R1-123**		**1**			**16**
77.	Check lists	**R1-360**			**1**		**17**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
78.	Motor vehicles act	**R2-86**		**1**			**18**
79.	Motor vehicle insurance and surveys	**R2-10**		**1**			**19**
80.	Road safety signs	**R2-31**			**1**		**20**
UNIT – IIIDRIVER AND SAFETY							
81.	Driver safety programme	**R2-38**		**1**			**21**
82.	Selection of drivers and driver training	**R2-57**		**1**			**22**
83.	Driving test and drivers responsibility	**R2-57**		**1**			**23**
84.	Road signals and signs	**R2-31**			**1**		**24**
85.	Accident reporting and investigation procedures	**R2-77**			**1**		**25**
86.	Safe driving incentives and slogans in driver cabin	**R2-77**		**1**			**26**
87.	Motor vehicle transport workers act	**R1-137**		**1**			**27**
88.	Driver relaxation and rest pauses	**R2-55**		**1**			**28**
89.	Speed and fuel conservation	**R1-127**		**1**			**29**
90.	Emergency planning and Hazmat codes	**R1-93**		**1**			**30**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
UNIT – IVROAD CHARACTERISTICS AND PAVEMENT CONDITIONS							
91.	Road alignment and gradient	**R1-197**		**1**			**31**
92.	Reconnaissance and ruling gradient	**R1-265**		**1**			**32**
93.	Maximum rise per k.m, braking characteristics of vehicle	**R1-83**		**1**			**33**
94.	Skidding, restriction of speeds and significance of speeds	**R1-307**		**1**			**34**
95.	Pavement conditions, Sight distance, Safety at intersections	**R1-290**		**1**			**35**
96.	Traffic control lines and guide posts	**R2-61**		**1**			**36**
97.	Guard rails and barriers, street lighting and illumination	**R2-43**			**1**		**37**
98.	Overloading, concentration of driver, Plant railway	**R1-444**		**1**			**38**
99.	Clearance,track,warning methods	**R1-286**		**1**			**39**
100.	Loading and unloading	**R1-442**			**1**		**40**
UNIT – VSHOP FLOOR AND REPAIR SHOP SAFETY							
101.	Transport precautions	**R1-148**		**1**			**41**
102.	Safety on manual	**R1-112**		**1**			**42**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
103.	Mechanical handling equipment operations safe driving	**R1-201**		**1**			**43**
104.	Movement of cranes and conveyors etc	**R2-86**		**1**			**44**
105.	Servicing and maintenance	**R1-349**		**1**			**45**
106.	Equipment grease rack operation	**R1-346**		**1**			**46**
107.	Wash rack operation	**R2-43**		**1**			**47**
108.	Battery charging, gasoline handling	**R2-31**		**1**			**48**
109.	Other safe practices	**R1-113**			**1**		**49**
110.	Off the road motorized equipment	**R1-394**		**1**			**50**
TOTAL HOURS							**50**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

* LCD / PPT / Black Board (BB) / Worksheet(WS) / Video (V) / Group Discussion (GD) / Blended & Flipped (BF) / Open Educational Resources (OER) media that are freely accessible, Google tools like Drive (GRV) , Google Docs (GDO), and Google Slides(GS) , Google Forms (GOF) and Whiteboards(WB),Wikipedia (W) any other tools may also be included. [Mark the abbreviation in the teaching aids column]

Reference Books

111. K. (Ed.). (2015). *Road transport safety management system*. Ukraine: 4. European Union Twinning Project.

112. J.J.F., C. (2009). *Crow-Road safety manual*. SWOV.

113. J. (2017). *Urban Road safety*. Transport Research Laboratory, Berkshire,UK.

Web Resources

114. W1- https://www.slideshare.net/Ministerstvo/road-transport-safety-managemet-system

E – Books /Library INFLIBNET RESOURCES

115. https://nlist.inflibnet.ac.in/search/Record/EBC4040954

116. https://nlist.inflibnet.ac.in/search/Record/978-3-642-04754-1

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	Advanced driver assistance system	Peer teaching	1	HB
2.	Distracted Driving	Assignments	1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**1**	**Lecture**	**PPT**	**Behavior based safety**	**1**
2	**V**	**Lecture**	**PPT**	**Pedestrians and vehicle separations**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Motor vehicle transport workers act)**	**50%**
3.	**II INTERNAL**	**Unit – III (from Driver relaxation and rest pauses),IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.I.Vivek Ramkumar**		
Programme Coordinator	**Mr.A.Jaiveer kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (ODD/EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Occupational Health and Hygiene**	**Course Code :**	**19FS405**
Year / Semester	**II/IV**	**Section**	**--**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**5**
Course Teacher Name	**Mr. V.Dhamotharan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I INTRODUCTION OF OCCUPATIONAL HEALTH AND HYGIENE							
1	**Meaning of industrial hygiene**	**W1**		**1**			**1**
2	**Meaning of occupational health**	**W1**		**1**			**2**
3	**Difference between industrial hygiene and occupational health**	**W1**		**1**			**3**
4	**Work co-ordination between industrial hygienist and safety officer**	**W1**		**1**	**1**		**5**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	**Ergonomics**	**W1**		**2**			**7**
6	**First aid**	**W1**		**2**			**9**
7	**Poisoning first aid and antidotes**	**W1**		**1**			**10**
UNIT – II VARIOUS HEALTH HAZARDS & CONTROLS							
8	**Forms of chemical agents and biological agents for health hazards**	**W2**		**1**			**11**
9	**Routes of entry of hazardous substances into the body**	**W2**		**1**			**12**
10	**Eight key steps for assessing the health risk, methods of control**	**W2**		**1**	**1**		**14**
11	**Effects of vibration and its prevention measures**	**W2**		**2**			**16**
12	**Causes and effects of stress and its preventions strategies**	**W2**		**2**			**18**
13	**Types of skin hazards**	**W2**		**1**	**1**		**20**
UNIT– III INDUSTRIAL SANITATION							
14	**Introduction**	**W3**		**1**			**21**
15	**Safe water supply**	**W3**		**1**	**1**		**23**
16	**Collection and disposal of liquid & solid waste**	**W3**		**1**			**24**
17	**Safe food supply**	**W3**		**1**			**25**
18	**Control of insects & rodents**	**W3**		**1**			**26**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
19	**Sanitary facilities & other personal services**	**W3**		**1**			**27**
20	**Maintenance of general cleanliness**	**W3**		**1**			**28**
21	**Causes of occupational dermatitis**	**W3**		**1**			**29**
22	**Types of occupational dermatitis, treatment**	**W3**		**1**			**30**
UNIT – IV THE PULMONARY DISEASES							
23	**Introduction**	**W4**		**1**			**31**
24	**Properties of dust**	**W4**		**1**			**32**
25	**Atmospheric dust concentration & particle size**	**W4**		**1**			**33**
26	**Classification of dust based on its effect in the body**	**W4**		**1**			**34**
27	**Anatomical factors in dust injuries**	**W4**		**1**			**35**
28	**Physiological factors in dust injuries**	**W4**		**1**			**36**
29	**Dust causing pulmonary fibrosis**	**W4**		**1**			**37**
30	**A study of cancerous tissue, benign versus malignant tumors**	**W4**		**1**			**38**
31	**Definition of carcinogenic chemical**	**W4**		**1**			**39**
32	**The risk associated with occupational & environmental carcinogens**	**W4**		**1**			**40**
UNIT – V OCCUPATIONAL PHYSIOLOGY							
33	**Man as a system component**	**W5**		**1**			**41**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
34	**Allocation of functions , efficiency**	**W5**		**1**			**42**
35	**Occupational work capacity**	**W5**		**1**			**43**
36	**Aerobic and anaerobic work**	**W5**		**1**			**44**
37	**Evaluation of physiological requirements of jobs**	**W5**		**1**			**45**
38	**Parameters of measurements, categorization of job heaviness**	**W5**		**1**			**46**
39	**Work organization, stress, strain**	**W5**		**1**	**1**		**48**
40	**Fatigue, rest pauses , shift work**	**W5**		**1**			**49**
41	**Personal hygiene**	**W5**		**1**			**50**
TOTAL HOURS							**50**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes)P – Practical

Reference Books

3. *Handbook of occupational health and safety*. (1982). Chicago: NSC.

Web Resources

117. W1- https://www.slideshare.net/HemantKumar98/occupational-health-and-safety-139535565

118. W2- https://www.slideshare.net/jaboink/occupatinal-health-hazards

119. W3- https://www.slideshare.net/search/slideshow?searchfrom=header&q=INDUSTRIAL+SANITATION

120. W4- https://www.slideshare.net/shas595/respiratory-diseases-2834774

121. W5- https://www.slideshare.net/JasmineJohn/work-physiology-12957808

E – Books /Library INFLIBNET RESOURCES

5. https://nlist.inflibnet.ac.in/search/Record/EBC4933529
6. https://nlist.inflibnet.ac.in/search/Record/EBC4306367

Gaps in the Syllabus

SL.	Name of the Topic	PROPOSED	No of Hours	Hours with in the Time Table (HT) /

NO		ACTION	Allotted	Hours beyond the Time Table (HB)
1.	**Occupational rehabilitation**	**Assignments**	**01**	**HB**
2.	**Musculoskeletal disorders**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Learning from Accidents**	**1**
2	**III**	**Lecture**	**PPT**	**Musculoskeletal disorders**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Safe food supply)**	**50%**
3.	**II INTERNAL**	**Unit – III (Control of insects and rodents) , IV, V**	**50%**

4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.V.Dhamotharan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Safety at Oil & Gas Industries**	**Course Code :**	**19FS406**
Year / Semester	**II/IV**	**Section**	**--**
Total No. of Students	**22**	**No. of Credits**	**4**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**55**
Course Teacher Name	**Mr. P. Navaneethakrishnan**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – IHEALTH SAFETY AND ENVIRONMENT MANAGEMENT							
1	**Learning from the incidents**	**E1 - 01**		**2**	**1**		**3**
2	**Hazards inherent in oil and gas industry**	**E1 - 10**		**2**	**1**		**6**
3	**Risk management techniques used in the Oil and gas Industries**	**E1 - 18**		**2**	**1**		**9**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
4	**Documented evidence of an organization s Process safety arrangements**	**E1 - 32**		**2**			**11**
UNIT – IIIHYDRO CARBON PROCESS SAFETY- 1							
5	**Contractor management**	**E2 - 01**		**2**			**13**
6	**Process safety management**	**E2 - 05**		**2**	**1**		**16**
7	**Role and Purpose of a permit to work system**	**E2 - 08**		**2**			**18**
8	**Principles of safe shift handover**	**E2 - 14**		**2**			**20**
9	**Plant operation and maintenance**	**E2 - 17**		**2**			**22**
10	**Start up and shut down**	**E2 - 26**		**2**			**24**
11	**Failure modes**	**E3 - 01**		**1**	**1**		**26**
12	**Safety critical equipments control**	**E3 - 10**		**2**			**28**
13	**Safe containment of hydrocarbons**	**E3 - 15**		**2**	**1**		**31**
14	**Fire hazards risks and control**	**E3 - 31**		**2**			**33**
UNIT – IIIHYDRO CARBON PROCESS SAFETY- 2							
15	**Types of Failure mode that may lead to loss of Containment from Hydrocarbons**	**E3 - 06**		**2**			**35**
16	**Controls available to maintain safety critical equipment**	**E3 - 10**		**2**			**37**
17	**Hazards Risk and controls available for safe containment of Hydrocarbons in off shore and onshore**	**W1**		**2**			**39**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
18	**Control measure available for operating boilers and furnaces**	**W2**		**2**			**41**
UNIT – IVFIRE PROTECTION AND EMERGENCY RESPONSE							
19	**Fire and explosion in Oil and Gas industry**	**E4 - 01**		**2**			**43**
20	**Appropriate control measures to minimize the effects of the explosion in the oil and gas industries**	**E4 - 03**		**2**			**45**
21	**Principles, procedures and resources for effective Emergency response**	**E4 - 10**		**2**	**1**		**48**
22	**Safety Signages in Oil & Gas Industry**	**W3**		**2**			**50**
UNIT – VLOGISTICS AND TRANSPORT OPERATIONS							
23	**Identification of Hazards and suitable control measures for marine Transport in the Oil and gas industry**	**E5 - 01**		**2**			**52**
24	**Identification of main Hazards and the control measures for land transport in the oil and gas industry**	**E5 - 08**		**2**	**1**		**55**
TOTAL HOURS							**55**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes)P – Practical

Web Resources

122. W1- http://solvents.phillips66.com/en/hse/documents/hydrocarbonsafetycopinternetshow1.pdf

123. W2- http://www.banksengineering.com/blrsafety.htm#:~:text=Provide%20adequate%20air%20to%20boiler,Tampering%20with%20combustion%20safety%20control.

124. W3- https://www.ishn.com/articles/99966-dont-neglect-safety-signage-in-oil-and-gas-turnarounds

E – Books /Library INFLIBNET RESOURCES

2. **NEBOSH Oil and Gas Certificate E-Book.**

Gaps in the Syllabus

SL. NO	Name of the Topic	PROPOSED ACTION	No of Hours Allotted	Hours with in the Time Table (HT) / Hours beyond the Time Table (HB)
1.	**Learning from the Accidents**	**Assignments**	**01**	**HB**
2.	**Control measure available for operating boilers and furnaces**	**Peer Teaching**	**01**	**HB**

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Learning from Accidents**	**1**
2	**III**	**Lecture**	**PPT**	**Safe Containment of Hydrocarbons**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Controls available to maintain safety critical equipment)**	**50%**
3.	**II INTERNAL**	**Unit – III (from Hazards Risks & Controls available for safe containment of Hydrocarbons in off shore and on shore) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / In-charge	**Mr.P.Navaneethakrishnan**		
Programme Coordinator	**Mr.A.Jaiveer Kumar**		

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme:B.Sc Fire and Industrial Safety

Title of the Course : Industrial Plant Layout and Work Shop Safety **Course Code** : 19FS407

Year / Semester : II / IV **Section:** **Total No. of Students** : 22

No of Credits : 2 **Total No. of Contact Hours** : 30**Course**

Teacher (s) Name : Mr.B.Satheeshprabu **Corresponding lab Paper** : **No**

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
Industrial plant Layout								
37.		1	Introduction	-	-	-	2	2
38.		2	Plant layout for food Industries,	-	-	-	1	3

39.		2	Plant layout for Chemical Industries	-	-	-	1	4
40.		3	Plant layout for Construction Industries	-	-	-	2	6
41.		4	Process layout for food Industries	-	-	-	2	8
42.		5	Process layout for Chemical Industries	-	-	-	2	10
43.		6	Process layout for Construction Industries	-	-	-	2	12
44.		7	Machineries layout	-	-	-	2	14
45.		8	Emergency evacuation planning layout.	-	-	-	2	16
46.		9	Occupational Health and Safety layout.	-	-	-	2	18
47.		10	Piping layout	-	-	-	2	20
48.		11	Material handling layout	-	-	-	2	22
Work shop Safety								
49.		12	Introduction	-	-	-	1	23
50.		12	EHS guidelines	-	-	-	1	24
51.		13	Floor marking	-	-	-	1	25
52.		13	Emergency symbols	-	-	-	1	26
53.		14	Machine guarding	-	-	-	1	27

54.		14	Lighting	-	-	-	1	28
55.		15	Ventilation and other aspects	-	-	-	1	29
56.		15	Housekeeping and 5s methods	-	-	-	1	30
Total								30

Include Lab manual details and mode of assessment direct and indirect

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	Mr. B.Satheeshprabu		
Module Coordinator (one person who would coordinate all Courses in a Programme according to OBE)	Mr. A.Jaiveer Kumar		

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	Mr.I.Vivek Ramkumar			
Dean Academics	Dr. S. Priya			
Principal	Dr. R. Sujatha			

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme :	**Fire and Industrial Safety**	**Programme Code :**	**FS 1061**
Course Name :	**Basics of Industrial Safety**	**Course Code :**	**19FS409**
Year / Semester	**II**	**Section**	**MCHM 'A' & BBA**
Total No. of Students	**69**	**No. of Credits**	**2**
Corresponding lab Paper	**No**	**Total No. of Contact Hours**	**30**
Course Teacher Name	**Mr.B.Satheeshprabu**		

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
				L	**T**	**P**	
UNIT – I							
1	**Introduction**	**W1**		**1**			**1**
2	**Selection of plant Location & Layout**	**W1**		**1**			**2**
3	**Personal protective equipment (PPE)**	**W2**		**1**			**3**
4	**Types of PPE**	**W3**		**1**			**4**

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
5	**Machinery guard**	**W4**		**1**			**5**
6	**Types of machine guard**	**W4**		**1**			**6**
UNIT – II							
7	**Housekeeping: Definition – Advantage of housekeeping**	**W5**		**1**			**7**
8	**5's concept of housekeeping**	**W5**		**1**			**8**
9	**Material handling: - Manual handling- Mechanical handling**	**W6**		**1**			**9**
10	**Cranes and forklifts**	**W6**		**1**			**10**
11	**Powered equipments**	**W6**		**1**			**11**
12	**Other material handling machinery**	**W6**		**1**			**12**
UNIT – III							
13	**Ventilation –Types – Advantages**	**W7**		**1**			**13**
14	**Lighting & Illumination**	**W8**		**1**			**14**
15	**Occupational health hazards**	**W9**		**1**			**15**
16	**Occupational health hazards**	**W9**		**1**			**16**
17	**ON Site & OFF Site Emergency Response Plan (ERP)**	**W10**		**1**			**17**
18	**ON Site & OFF Site Emergency Response Plan (ERP)**	**W10**		**1**			**18**
UNIT – IV							

Sl. No.	TOPIC	Reference / Text Book Page No	*Teaching Aids	Mode of Delivery No of Hours			Cumulative Hours
19	**Work permit and NOC**	**W11**		**1**			**19**
20	**Definition- Types of work permit**	**W11**		**1**			**20**
21	**Excavation permit**	**W11**		**1**			**21**
22	**Confined space entry permit- Acid entry permit**	**W11**		**1**			**22**
23	**Preparation of work permit Principles of accident prevention-**	**W11**		**1**			**23**
24	**Accident prevention programmes**	**W11**		**1**			**24**
UNIT – V							
25	**Laws on safety (Introduction and objectives)**	**W12**		**1**			**25**
26	**Factory act- Duties and responsibilities of safety officer**	**W12**		**1**			**26**
27	**Safety policy- Safety organization**	**W12**		**1**			**27**
28	**Safety committees**	**W12**		**1**			**28**
29	**Safety promotion role by:- Government, Management, Supervisor, Workers, Trade union.**	**W13**		**1**			**29**
30	**Safety promotion role by:- Government, Management, Supervisor, Workers, Trade union**	**W13**		**1**			**30**
TOTAL HOURS							**30**

L – Lecture T – Tutorial (Problems / Example Programs / Revision Classes) P – Practical

Reference Books

125. R. (n.d.). *1. "A Guide to Health safety and environment",*. Khanna Publication.

126. L. (n.d.). , *"Loss prevention in process industries",*. London: Butterworth Publication.

Web Resources

127. W1 - https://www.slideshare.net/AbdElRahmanElsayed4/plant-location-layout-design

128. W2- https://info.basicsafe.us/safety-management/blog/lockout-tagout-procedure-in-8-simple-steps

129. W3 - https://www.ccohs.ca/oshanswers/hsprograms/house.html#

130. W4 - https://www.ehstoday.com/safety/article/21910989/machine-safeguarding-risk-assessment-and-risk-reduction

131. W5 - https://www.factorysystems.eu/en/gme/5s-method-housekeeping/

132. W6 - https://www.tatapower.com/pdf/sustainability/safety/Material-Handling-Storage.pdf

133. W7 - https://www.ncbi.nlm.nih.gov/books/NBK143277/

134. W8 - https://www.slideshare.net/HDIT/illumination-lighti

135. W9 -https://www.osha.gov/shpguidelines/hazard-prevention.html

136. W10 - http://www.environmentclearance.nic.in/writereaddata/online/RiskAssessment/30092016ORJEGHK1Onsite.pdf

137. W11 - https://www.hseblog.com/the-different-types-of-the-permits/

138. W12 - https://www.keshacademy.com/media/docs/policies/KESH-Health%20and%20Safety%20Policy.pdf

139. W 13 - http://www.ilocis.org/documents/chpt21e.htm

E – Books /Library INFLIBNET RESOURCES

140. Residential, Commercial and Industrial Electrical Systems VOLUME 3, by JOSHI.Published 2007- https://nlist.inflibnet.ac.in/search/Record/EBC5121201

141. Risk Assessment of Chemicals: An Introduction, Published 2007- https://nlist.inflibnet.ac.in/search/Record/978-1-4020-6102-8

Gaps in the Syllabus

SL.	Name of the Topic	PROPOSED	No of Hours	Hours with in the Time Table (HT) /

NO		ACTION	Allotted	Hours beyond the Time Table (HB)
1.	Fire hydrant	Peer Teaching	1	HB
2.	Gas welding	Assignments	1	HB

* Proposed Actions can be Assignments, Seminars, Peer Teaching, Industrial Visit, Others (if any)

COURSE PLAN FOR CONTENT BEYOND SYLLABUS (TO MEET THE INDUSTRIAL NEEDS)

SI.NO	Module	Mode of Delivery	Teaching Aids	Planned Topics	Total No of Hours Allotted
1	**I**	**Lecture**	**PPT**	**Zero Mechanical State (ZMS)**	**1**
2	**V**	**Lecture**	**PPT**	**Competent persons**	**1**

PORTION FOR EXAMINATION

Sl. No.	Mode	Proposed Portions to be Covered	Proportion (Portion) in Percentage
1.	**SLIP / CLASS TEST**	**Unit – I**	**20%**
2.	**I INTERNAL**	**Unit – I, II, III (up to Occupational health hazards)**	**50%**
3.	**II INTERNAL**	**Unit – III (from ON Site & OFF Site Emergency Response Plan (ERP)) , IV, V**	**50%**
4.	**End Semester Examination**	**Unit I to V**	**100%**

Designation	Prepared by

	Name	Signature	Date
Course Coordinator / In-charge	**Mr.B.Satheeshprabu**		
Programme Coordinator			

Approved by			
	Name	**Signature**	**Date**
HoD	**Mr.I.Vivek Ramkumar**		
Dean Academics	**Dr.S.Priya**		
Principal	**Dr.R.Sujatha**		

SUBBALAKSHMI LAKSHMIPATHY COLLEGE OF SCIENCE

COURSE PLAN – 2020 – 21 (EVEN SEMESTER)

Name of the Programme:B.Sc Fire and Industrial Safety

Title of the Course : Scaffolding & work at height **Course Code :**

Year / Semester : I / II **Section:** **Total No. of Students : 22**

No of Credits : 2 **Total No. of Contact Hours : 30Course**

Teacher (s) Name : Mr. V. Dhamotharan **Corresponding lab Paper : No**

Sl. No.	Unit	Week No.	Name of the Experiment	Page No in the Lab Manual	Gap in the Syllabus if any	Content beyond Syllabus, if any	No. of Hours	Cumulative Hours
14.		1	Introduction	-	-	-	2	2
15.		2	Tied off procedure	-	-	-	3	5
16.		3	3 point anchorage while ascending & descending	-	-	-	3	

								8
17.		4	Wearing the full body harness with double landyard	-	-	-	3	11
18.		5	Using mehod of vertical life line	-	-	-	3	14
19.		6	Using method of horizontal lifeline	-	-	-	3	17
20.		7	Training on use of fall arrestor- rope grab	-	-	-	2	19
21.		8	Training on use of fall arrestor – rope retractable	-	-	-	3	22
22.		9	Using the safety net for man falling	-	-	-	2	24
23.		10	Using the safety net for material falling	-	-	-	2	26
24.		11	Inspection of all protection equipment	-	-	-	2	28
25.		12	Learning of technical data about fall protector.				1	29
26.		13	Practical Examination and Final Assessment.				1	30
Total								30

Include Lab manual details and mode of assessment direct and indirect

Designation	Prepared by		
	Name	**Signature**	**Date**
Course Coordinator / Incharge	Mr. V. Dhamotharan		
Module Coordinator (one person who would coordinate all Courses in a Programme according to OBE)	Mr. A.Jaiveer Kumar		

Approved by				
	Name	**Signature**	**Seal**	**Date**
HoD	Mr.I.Vivek Ramkumar			

Dean Academics	Dr. S. Priya			
Principal	Dr. R. Sujatha			