ACADEMIC CURRICULA & SYLLABUS

Common Courses

Master of Technology

(Full Time)

Volume – 5

Academic Year

2020 – 2021

Office of the Registrar
SRMIST
Control Copy
Approved in
57th Board of Management Meeting 30.06.2020
43rd Academic Council Meeting 15.03.2020

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

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Kattankulathur, Chengalpattu District 603203, Tamil Nadu, India

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ERRATA

The course titled "*20GNS502T Research Methods in Engineering*" is amended as "*20GNS502J Research Methodology (Science and Technology)*" with LTPC of 2 1 2 4

ACADEMIC CURRICULA & SYLLABUS

Skill Enhancement Courses (S)

Master of Technology

(Full Time)

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Kattankulathur, Chengalpattu District 603203, Tamil Nadu,

India

Course Code	20GNS501J	Course Name	RESEARCH PUBLISHING AND PRESENTING SKILLS	Course Category	S	Skill Enhancement	L	T	P	C
							1	0	2	2

Pre-requisite Courses	*Nil*	Co-requisite Courses	*Nil*	Progressive Courses	*Nil*
Course Offering Department	*All Departments*	Data Book / Codes/Standards	*Nil*		

Course Learning Rationale (CLR):	*The purpose of learning this course is to:*	Learning
		1 2 3
CLR-1:	*Practice different oral presentation material preparations*	
CLR-2:	*Practice presenting techniques suitable for different audiences*	
CLR-3:	*Prepare and typeset scientific documents for disseminating research findings*	
CLR-4:	*Analyze different disseminating techniques available*	
CLR-5:	*Utilize different intellectual property sharing mechanisms*	
CLR-6:	*Evaluate amongst different options available to present, publish research findings*	

Course Learning Outcomes (CLO):	*At the end of this course, learners will be able to:*	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Program Learning Outcomes (PLO)														
					1 Disciplinary Knowledge	2 Critical Thinking	3 Problem Solving	4 Analytical Reasoning	5 Research Skills	6 Team Work	7 Scientific Reasoning	8 Reflective Thinking	9 Self-Directed Learning	10 Multicultural Competence	11 Ethical Reasoning	12 Community Engagement	13 ICT Skills	14 Leadership Skills	15 Life Long Learning
CLO-1:	*Identify different oral presentation elements, materials and technologies*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M
CLO-2:	*Practice high impact presentation skills*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M
CLO-3:	*Identify ways to present technical / scientific content structure and elements*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M
CLO-4:	*Practice the different disseminating techniques used in scientific research findings*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M
CLO-5:	*Identify intellectual property and its components, ways to protect, share intellectual information*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M
CLO-6:	*Analyze the different oral and written publishing techniques to disseminate research findings*	*3*	*85*	*80*	L	H	H	M	M	-	L	H	M	-	H	-	L	-	M

Duration (hour)		Oral Content Preparation	Presenting Methods	Written Content Preparation	Publishing Methods	Intellectual Property & Plagiarism
		9	9	9	9	9
S-1	SLO-1	Oral Presentation Structure: Manuscript, Impromptu, Memory, Extempore	Describe Audience; knowledge, Experience, Needs, Goals	Writing Preface, Prelude, Prologue, foreword, Introduction, Abstract,	Typesetting: LaTex, Word, XML etc.,	Public License, Creative Commons, Share-alike, Reciprocal License,
	SLO-2	context, need, agenda ,task, and object of the presentation document	Plan, Prepare, Practice, Present Creating a Positive First Impression,	Writing Dedication, Acknowledgement, Forward, Background	Indexing: ISI, SCI, SCIE, SCOPUS, SCIMAGO, ESCI, WoS,	Copyleft, Patentleft, Open patent, Public Domain
S 2-3	SLO-1	Practice-1: Create Structure of a Presentation	Practice-4: Building rapport with Audience	Practice-7: Writing Preface, Prelude, Prologue, foreword, Introduction, Abstract	Practice-12: LaTex Editor, Word Editor	Practice-13: GNU-GPL, Public License Creative Commons License, Unlicense
	SLO-2					
S-4	SLO-1	Gather data, evidence to present, visual-auditory balance, engagement techniques	Increasing Credibility, Presenting Complex Material, Communicating with Impact	Literature Review: Narrative, Systematic, Argumentative, Integrative, Theoretical	Disseminating Research Findings: Public Domain, Open Information, Wikipedia	Intellectual Property Rights, Copyrights, Patents, Trademarks, and Trade secrets
	SLO-2	Introduction, body, closure, question-answer	Motivating Others, Responding to Pressure Situations, Inspiring People	Writing Problem Statement, Limitations, Method Adapted, Tools & Technology used	Media, Press Release, Flyers, Brochure, Research Summary, Posters, Websites	Industrial design rights, Plant variety rights, trade dress, geographical indications
S 5-6	SLO-1	Practice-2: Create a structured oral presentation module	Practice-5: Communicating with Greater Impact, Rehersals and Retrials	Practice-8: Writing Literature Review	Practice-11: Study of Various Open Publishing Methods	Practice-14: IPR Law, Private Domain
	SLO-2					
S-7	SLO-1	Tools: Presentation Slides, Whiteboard Animators, Immersive Technologies	Delivery Styles: Visual, Freeform, Lessig Instructor, Coach, Storytelling, Connector	Main Body: Analysis, Design, Development Steps, Implementation Steps, Evaluations	Patents, Journals, Conferences, Reports, RFCs etc.,	Infringements: Copylefts, Copyrights, Patentlefts, Patentrights,
	SLO-2	Handouts, Visual Aids, Demonstrative Aids, Thought Provoking Questions	Persuasive, Interactive, Decision Making, Educational, Takahasi Arousing	Referencing: Documentary, Parenthetical, Numbered, Vancouver, IEEE, Harvard etc.,	Journal Index, Impact Factor, Quality Standards	Plagiarism: Paraphrasing, Verbatim, Mosaic, Global, Self, Accidental etc.,
S 8-9	SLO-1	Practice-3: Demonstrating a multi technology oral presentation	Practice-6: Presenting same content using different delivery styles	Practice-9: Writing Main Body	Practice-12:Study of h-index, i10-index, g-index, r-index, π - index	Practice-15: Plagiarism checking and correcting techniques
	SLO-2					

Learning Resources	
	1. Dale Carnegie, "Develop Self-Confidence, Improve Public Speaking", Amazing Reads, 2018 2. Dale Carnegie, "The Art of Public Speaking", Amazing Reads, 2018 3. Joseph Mugah, "Essentials of Scientific Writing: How to Write Effective Titles and Abstracts for Research Papers and Proposals", Authorhouse, 2016 4. Rajesh Singh, Sanjeev Kumar Sinha, Samir Kumar, "Unfolding Intellectual Property Rights : A Practical Patent Guide for Researchers, Academicians and start-ups", Notion Press, 2019 5. Robert P. Merges, Peter S. Menell, Mark A. Lemley, " Intellectual Property in New Technological Age", 2016

Learning Assessment									
	Bloom's Level of Thinking	Continuous Learning Assessment (60% weightage)						Final Examination (40% weightage)	
		CLA – 1 (20%)		CLA – 2 (25%)		CLA – 3# (15%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	20%	20%	15%	15%	15%	15%	15%	15%
Level 2	Apply Analyze	20%	20%	20%	20%	20%	20%	20%	20%
Level 3	Evaluate Create	10%	10%	15%	15%	15%	15%	15%	15%
	Total	100 %		100 %		100 %		100 %	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
1. Dr. Sainarayanan Gopalakrishnan, HCL Technologies, sai.jgk@gmail.com	1. Dr. Venkat Adhikari, Technology Licensing Manager, IISC, venkatadhikari@iisc.ac.in	1. Dr. Rajeev Sukumaran SRMIST
2. Dr. Sricharan Srinivasan, Wipro Technologies, sricharanms@gmail.com	2. Mr. Ateet Palmurkar, Senior Manager IP Licensing, IITM, ipmarketing@iitm.ac.in	2. Dr. V. Nithyananthan SRMIST

Course Code	20GNS502J	Course Name	RESEARCH METHODOLOGY (SCIENCE and TECHNOLOGY)	Course Category	S	Skill Enhancement	L	T	P	C
							2	1	2	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	All Departments	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	Get overall picture of research methodology
CLR-2 :	Search and find research resources and to review it
CLR-3 :	Get expertise in academic writing and presentation skills
CLR-4 :	Learn the importance of modern statistical tools for research
CLR-5 :	Learn optimization tools, modelling tools and case studies in the domain of study

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Disciplinary Knowledge	Critical Thinking	Problem Solving	Analytical Reasoning	Research Skills	Team Work	Scientific Reasoning	Reflective Thinking	Self-Directed Learning	Multicultural Competence	Ethical Reasoning	Community Engagement	ICT Skills	Leadership Skills	Life Long Learning
CLO-1 :	Demonstrate ability to identify research topic and draft research proposal using the scientific methods of enquiry.	1	80	70	H	H	-	H	-	-	-	-	-	-	-	-	-	-	-
CLO-2 :	Carry out literature survey / review in research domains using online, library resources and modern tools.	1	80	70	-	-	-	H	H	M	-	-	-	-	-	-	-	-	-
CLO-3 :	Write project proposals, research reports and publish the work with ethical and moral responsibilities.	1	80	70	-	-	-	H	-	-	H	-	-	-	-	-	H	-	-
CLO-4 :	Apply statistical principles in data collection, analysis, inference and prediction.	2	80	70	-	H	H	H	-	-	-	-	-	-	-	-	-	-	-
CLO-5 :	Apply basic principles and modern tools to model and simulate engineering systems	2	80	70	-	M	H	H	-	-	-	-	M	-	-	M	-	-	-

Duration (hour)		Research Preparation and Planning (9+2 Tutorial)	Research Resources (9+2 tutorial)	Academic Writing & Presentation (6+5 Tutorial)	Data Collection, Analysis and Inference (12)	Modelling and Case Studies 12(practice)
S-1	SLO-1	Introduction to research methodology, Need	Sources of information – types, ICT enabled tools	Preparation of project proposal for funding – Identification of funding agencies - format - elements of Style	Basic probability distributions – types – applications in Engineering – statistics – types	**Optimization studies and modern**

	SLO-2	*Research – objectives, definitions – knowledge economy*	*Databases, repositories, public and private sources, indexes*	*Organization of proposals – current status in national & global scenario*	*Normal distribution – exercises – problem solving using software tools*	***tools usage** in the field of study – case studies, use cases, exercises*
S-2	SLO-1	*Perspectives of stakeholders*	*Literature search – Keyword, backward and forward search*	*Research report writing: Identification of line of argument – article type*	*Binominal and Poisson distributions – exercises using software*	
	SLO-2	*Types of research - examples*	*Area of research – background knowledge – new approach*	*Communication model – audience analysis – tailoring for audience*	*Weibull and exponential distributions*	
S-3	SLO-1	*Understanding research goals – examples*	*Quality measurement tools: citation index, impact factor, h-index, g-index, i10 index, JCR*	*Identification of suitable journal – format – instructions to authors – structure - major headings*	*Sampling: types – size of sample – sample designs*	
	SLO-2	*Critical thinking Vs Creative thinking*		*Writing discussion & conclusions*		
S-4	SLO-1	*Templates for design problem definition*	*Reading research article – meta analysis*	*Conference presentation types: Oral, poster – difference in audience interaction*	*Sampling tests: Student t-test – applications in engineering / research – exercises using software tools*	*Modelling and Simulation in the field of study – case studies, use cases, exercises (to improve analyzing and evaluating skills of scholars)*
	SLO-2	*Research proposal – rational techniques to find research ideas*	*Literature review: Grouping, analyzing & comparison of articles*	*Synopsis – Thesis - extended abstract – graphical and video abstract - short communications*		
S-5	SLO-1	*Techniques for generating research topic – attributes, justification*	*Reporting literature review*	*Contributions of the work – Novelty – Innovation - Examples*	*F-test and its application in research studies – exercises using software*	
	SLO-2	*Identifying broad research question and objectives.*	*Literature gap, refining research question and objectives – case studies*	*Referencing – style – tools for referencing, Appendix – Manual for preparation of Synopsis*	*χ2 test and its application in research studies – exercises using software*	
S-6	SLO-1	*Methods of scientific enquiry – Theoretical, Experimental and Emperical - Examples*	*Identification of research methods – Experiments – results – Examples*	*Thesis Writing: Structure – Preliminary pages, Main body, References – contents - Manual*	*Correlation and regression Analysis- Time series analysis*	
	SLO-2			*Evaluation of Thesis – examiner reports – example - Oral defense*	*Forecasting methods*	
S-7	SLO-1	*Innovation, Tools for scientific enquiry - Questionnaire*	*Intellectual Property Rights – Motivation – WIPO and WTO – IPR laws – TRIPS*	*Tutorial on writing an abstract from a manuscript*	*Factor analysis, Cluster Analysis and Discriminant Analysis*	1. *Recent inventions and innovations in the field of study – Case studies.*
	SLO-2	*Techniques in designing questionnaire – case studies*	*Copyright – patent – invention – trademark – trade secret – Geographical indication – industrial designs – Technology transfer*			2. *Adoption of Artificial*

S-8	SLO-1	*Hypothesis - Formulation*	*Patenting procedures; Patent search – case studies*	*Tutorial on writing materials and methods and methodology / experiments*	*Design of experiments - basic experimental designs:*	*Intelligence and Machine Learning tools in the field of study – case studies.*
	SLO-2	*Hypothesis testing – examples / case studies*			*Completely Randomized Design*	
S-9	SLO-1	*Procedural guidelines in research process – example / use case*	*Exercise on literature review*	*Tutorial on presenting experimental results using charts and graphs*	*Randomized Block Design, Latin Square Design - Exercises*	
	SLO-2					
S-10	SLO-1	*Tutorial on questionnaire preparation*	*Tutorial on reading a research article*	*Tutorial on writing discussion section from experimental results and literature review.*	*Full factorial design - 2^2, 2^3 and 2^4 only - exercises*	*Analysis of thesis from library / UGC/ other University web portals, etc*
	SLO-2					
S-11	SLO-1	*Tutorial on hypothesis formulation and testing*	*Tutorial on writing literature review report from literature search*	*Tutorial on thesis preparation*	*Fractional factorial designs - exercises*	
	SLO-2					
S-12	SLO-1				*Accuracy, Precision and error analysis*	
	SLO-2					

Learning Resources	*1. Mukerjee, S.P., (2020), A Guide to Research Methodology: An Overview of Research Problems, Tasks and Methods, CRC Press, Taylor & Francis Group, New York* *2. Bairagi, V., and Munot. M.V., (2019), Research Methodology: A practical and scientific approach, CRC Press, Taylor & Francis Group, New York.* *3. Locharoenrat, K., (2017), Research Methodology for beginners, CRC Press, Taylor & Francis Group, New York* *4. Alvi, M.H., (2016), A Manual for Referencing styles in Research, University of Karachi, Karachi, Pakistan.* *5. IEEE Reference Guide (2018), IEEE Periodicals, Transactions / Journal Department, Piscataway , New Jersey, USA* *6. Ganesan R, Research Methodology for Engineers, MJP Publishers, Chennai. 2011* *7. Walpole R.A., Myers R.H., Myers S.L. and Ye, King: Probability & Statistics for Engineers and Scientists, Pearson Prentice Hall, Pearson Education, Inc. 2007.* *8. Dawson, C., (2002), Practical Research Methods, How to Books, Oxford OX4.1E, United Kingdom.*	*9. Adams, K.A., and Lawrence, E.K., (2019), Research Methods, Statistics and applications, Sage Publication, Thousand ORKS, California, USA* *10. Gastel, B., and Day, R.A., (2016), How to Write and Publish a Scientific paper, 8th Edition, Greenwood, California* *11. Kornuta, H.M., and Germaine, R.W., (2006), A concise guide to writing a Thesis or Dissertation, 2nd Edition, Taylor & Francis Group, New York* *12. Greenfield, T., and Greener, S., John Wiley & Son (2016), Research Methods for Post Graduates, West Sussex, United Kingdom.* *13. Turabian, T.L., (2007), A Manual for Writers of Research Papers, Thesis and Dissertation, 7th Edition, The University of Chicago Press, Chicago, USA* *14. Theil, D.V., (2014), Research Methods for Engineers, Cambridge University Press, Cambridge, UK.* *15.* ***Web resources:*** *Suitable web resources shall be referred by learners.*

Learning Assessment									
	Bloom's Level of Thinking	Continuous Learning Assessment (60% weightage)						Final Examination (40% weightage)	
		CLA – 1 (15%)		CLA – 2 (20%)		CLA – 3 #(25%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	30 %	-	30 %	-	-	-	30 %	-
Level 2	Apply Analyze	40 %	-	40 %	-	-	80%	40 %	-
Level 3	Evaluate Create	30 %	-	30 %	-	-	20%	30 %	-
	Total	100 %		100 %		100 %		100 %	

CLA – 3 shall be from Modelling and case studies unit.

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
1. Mr. Anuj Kumar, Bombardier Transportation, Ahmedabad, kumaranuj.anii@gmail.com	1. Dr. Meenakshi, Professor of ECE, CEG, Anna University, meena68@annauniv.edu	1. Prof. A. Subbarayan., SRMIST
2. Mr. Hariharasudhan - Johnson Controls, Pune, hariharasudhan.v@jci.com	2. Dr. Venkatesan, Sr. Scientist, NIOT, Chennai, venkat@niot.res.in	2. Prof. D. Kingsly Jeba Singh, SRMIST

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							0	0	0	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	
Course Offering Department	All Departments			Data Book / Codes/Standards	Nil

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	Provide an exposure to an industrial environment or research laboratory / institution
CLR-2 :	Acquire practical knowledge of theoretical concepts
CLR-3 :	Understand the organization structure, functions and protocols

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning		
		1	2	3
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)
CLO-1 :	Appreciate the functioning of an organization	1	70	65
CLO-2 :	Apply the theoretical concepts to solve engineering problems	2	80	75
CLO-3 :	Take up different roles in a career with confidence	3	65	60

Program Learning Outcomes (PLO)														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Disciplinary Knowledge	Critical Thinking	Problem Solving	Analytical Reasoning	Research Skills	Team Work	Scientific Reasoning	Reflective Thinking	Self-Directed Learning	Multicultural Competence	Ethical Reasoning	Community Engagement	ICT Skills	Leadership Skills	Life Long Learning
H	H	H	H	M	H	H	H	M	H	M	M	M	L	M
H	H	H	H	H	H	H	H	H	M	H	M	H	H	H
H	M	L	L	M	M	M	M	L	L	L	L	L	M	M

It is mandatory for every student to undergo this course.

Every student is expected to spend a minimum of 4 to 6 weeks in an Industry/ Company/ Organization, during the summer vacation between II and III semester

The type of industry must be NOT below the Medium Scale category in his / her domain of the degree programme.

The student must submit the "Training Completion Certificate" issued by the industry / company / Organisation as well as a technical report not exceeding 15 pages, within the stipulated time to be eligible for making a presentation before the committee constituted by the department.

The committee will then assess the student based on the report submitted and the presentation made.

Marks will be awarded out of maximum 100.

Appropriate grades will be assigned as per the regulations.

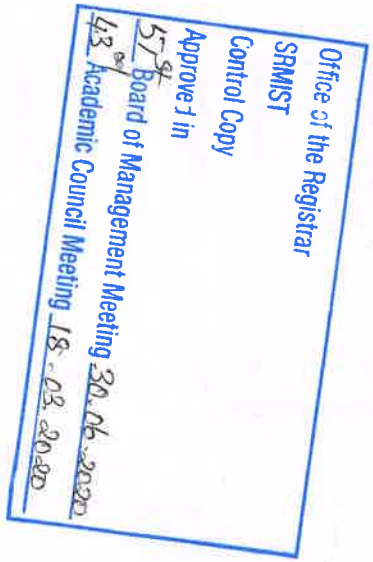
Only if a student gets a minimum of pass grade, appropriate credit will be transferred towards the degree requirements, as per the regulations.

It is solely the responsibility of the individual student to fulfill the above conditions to earn the credits.

The attendance for this course, for the purpose of awarding attendance grade, will be considered 100%, if the credits are transferred, after satisfying the above (1) to (8) norms; else if the credits are not transferred or transferable, the attendance will be considered as ZERO.

The committee must recommend redoing the course, if it collectively concludes, based on the assessment made from the report and presentations submitted by the student, that either the level of training received or the skill and / or knowledge gained is NOT satisfactory.

Assessment for Semester Internship		
	Final Evaluation (100% weightage).	
	Report along with completion certificate from company	Viva-Voce
Semester Internship	50 %	50 %



Course Code	20AUP602L / 20BMP602L / 20BTP602L / 20CHP602L / 20CEP602L / 20CSP602L / 20ECP602L / 20EEP602L / 20EIP602L / 20GEP602L / 20ITP602L / 20MEP602L / 20MHP602L / 20NTP602L	Course Name	MINOR PROJECT	Course Category	P	Project Work, Internship In Industry / Higher Technical Institutions	L	T	P	C
							0	0	8	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	
Course Offering Department	All Departments	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	Conceptualize a novel idea / technique
CLR-2 :	Think in terms of social or commercial applications
CLR-3 :	Understand the management techniques of implementing a project
CLR-4 :	Prepare a technical report and present in a professional manner

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Disciplinary Knowledge	Critical Thinking	Problem Solving	Analytical Reasoning	Research Skills	Team Work	Scientific Reasoning	Reflective Thinking	Self-Directed Learning	Multicultural Competence	Ethical Reasoning	Community Engagement	ICT Skills	Leadership Skills	Life Long Learning
CLO-1 :	Identify and solve simple engineering / biological problems	1	70	65	H	H	H	H	M	H	H	H	M	H	M	M	M	L	M
CLO-2 :	Assess the feasibility of project commercialization	2	80	75	H	H	H	H	H	H	H	H	H	M	H	M	H	H	H
CLO-3 :	Manage the implementation of a project	3	65	60	H	M	L	L	M	M	M	M	L	L	L	L	L	M	M
CLO-4 :	Document a project report	3	75	70	H	H	H	H	L	M	H	M	H	M	M	M	H	M	H

An in-house project to be taken up by the individual student and complete the minor project before the end of III semester

The project can be a development of an experimental kit/ method, an innovative concept or idea or methodology or algorithm / technique, a 3D model, simulation, prototype product, blueprint for a larger project or any other similar developmental work that the respective department approved by the department, are permitted.

The student must be attached to a faculty supervisor / mentor

A comprehensive report is to be submitted.

A presentation is to be made on the work done by the student to committee of reviewers

Learning Assessment weightage

	Continuous Learning Assessment (70% weightage)		Final Evaluation (30% weightage)	
	Review I	Review II	Report	Viva-Voce
Minor Project	20 %	50 %	15 %	15 %

Course Code	20AUP603L / 20BMP603L / 20BTP603L / 20CHP603L / 20CEP603L / 20CSP603L / 20ECP603L / 20EEP603L / 20EIP603L / 20FPP603L / 20GEP603L / 20ITP603L / 20MEP603L/ 20MHP603L / 20NTP603L	Course Name	PROJECT WORK PHASE - I	Course Category	P	Project Work, Internship In Industry / Higher Technical Institutions	L	T	P	C
							0	0	12	6

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	
Course Offering Department	All Departments	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning			Program Learning Outcomes (PLO)														
CLR-1 :	Provide students with the opportunity to explore a problem or issue of particular personal or professional interest	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 :	Address the problem or issue through focused study and applied research	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Disciplinary Knowledge	Critical Thinking	Problem Solving	Analytical Reasoning	Research Skills	Team Work	Scientific Reasoning	Reflective Thinking	Self-Directed Learning	Multicultural Competence	Ethical Reasoning	Community Engagement	ICT Skills	Leadership Skills	Life Long Learning
CLR-3 :	Prepare a technical report and present in a professional manner																		

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:																		
CLO-1 :	Understand problem pertaining to various social relevant issues based on individual or Community base	1	85	95	H	H	H	H	H	-	L	-	H	H	-	H	-	H	H
CLO-2 :	Apply their expertise to provide a suitable long-term solution to research problems	2	85	95	H	H	H	H	H	-	L	-	H	H	-	H	-	H	H
CLO-3 :	Compile the output in a scientific way and present it to scientific community	3	85	95	H	H	H	H	H	-	L	-	H	H	-	H	-	H	H

The project work (Phase – I) is the preparatory phase for the major project to be taken up during the final semester of the programme.
Each student is expected to identify an engineering problem in his / her specialization of study.
Each student must study in-depth the issues / causes & effects underlying the problem and define the objective of the subsequent work.
A faculty supervisor / mentor will be assigned to each project.
A report of the work done during Phase – I must be submitted at the end of the semester, for evaluation.
Assessment will be made as per the table below:

	Continuous Learning Assessment (70% weightage)			Final Evaluation (30% weightage)	
	Review - 1	Review - 2	Review – 3	Project Report	Viva-Voce
Project Work (Phase I)	15 %	25 %	30 %	15 %	15 %

Course Code	20AUP604L / 20BMP604L / 20BTP604L / 20CHP604L / 20CEP604L / 20CSP604L / 20ECP604L / 20EEP604L / 20EIP604L / 20FPP604L / 20GEP604L / 20ITP604L / 20MEP604L / 20MHP604L / 20NTP604L	Course Name	PROJECT WORK PHASE - II	Course Category	P	Project Work, Internship In Industry / Higher Technical Institutions	L	T	P	C
							0	0	32	16

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	
Course Offering Department	All Departments	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning
CLR-1:	Provide students with the opportunity to explore a problem or issue of particular personal or professional interest	1
CLR-2:	Address the problem or issue through focused study and applied research	
CLR-3:	Demonstrate the student's ability to synthesize and apply the knowledge and skills acquired in his/her academic program to real-world issues and problems	
CLR-4:	Affirm students' ability to think critically and creatively, to solve practical problems, to make reasoned and ethical decisions, and to communicate effectively	
CLR-5:	Prepare a technical report and present in a professional manner	

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)
CLO-1:	Understand problem pertaining to various social relevant issues based on individual or Community base	1	85	90
CLO-2:	Apply their expertise to provide a suitable long-term solution to research problems	2	85	90
CLO-3:	Impart his/her specialization knowledge in addressing issues pertaining to the society	3	85	90
CLO-4:	Recommend with suitable justification, by comparing with various standards and regulations	3	85	90
CLO-5:	Compile the output in a scientific way and present it to scientific community	3	85	90

Program Learning Outcomes (PLO)	1 Disciplinary Knowledge	2 Critical Thinking	3 Problem Solving	4 Analytical Reasoning	5 Research Skills	6 Team Work	7 Scientific Reasoning	8 Reflective Thinking	9 Self-Directed Learning	10 Multicultural Competence	11 Ethical Reasoning	12 Community Engagement	13 ICT Skills	14 Leadership Skills	15 Life Long Learning
CLO-1:	H	M	H	H	H	H	H	M	H	H	H	H	M	H	H
CLO-2:	H	H	H	H	H	H	H	M	H	H	H	H	H	H	H
CLO-3:	H	H	H	H	H	H	H	M	H	H	H	H	M	H	H
CLO-4:	H	H	H	H	H	H	H	M	H	H	H	H	M	H	H
CLO-5:	H	H	H	H	H	H	H	M	H	H	H	H	M	H	H

The project work Phase - II is to extend their academic experience into areas of personal interest, working with new ideas, issues, organizations, and individuals.
The project shall be driven by realistic constraints like that related to economic, environmental, social, political, ethical, health & safety, manufacturability and sustainability.
A report of the work done during Phase – II must be submitted at the end of the semester, for evaluation.

Assessment will be made as per the table below:

	Continuous Learning Assessment (70% weightage)			Final Evaluation (30% weightage)	
	Review - 1	Review - 2	Review - 3	Project Report	Viva-Voce
Project Work (Phase I)	15 %	25 %	30 %	15 %	15 %

ACADEMIC CURRICULA & SYLLABUS

AUDIT COURSES (A)

For All Specializations

Master of Technology

(Full Time)

Academic Year

2020 – 2021

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)

Kattankulathur, Chengalpattu District 603203, Tamil Nadu,

India

Course Code	20CEA531J	Course Name	DISASTER MANAGEMENT	Course Category	A	Audit	L	T	P	C
							1	0	1	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Civil Engineering	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning			Program Learning Outcomes (PLO)											
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning
CLR-1 :	Introduce various types of disasters and role of various stakeholders in disaster management															
CLR-2 :	Understand various phases of disaster management and risk reduction measures															
CLR-3 :	Acquire knowledge on hazard management systems															
CLR-4 :	Manage the pre and post disaster scenario															
CLR-5 :	Understand the role of disaster management and development															
CLR-6 :	Understand various disaster management acts															
Course Learning Outcomes (CLO):	*At the end of this course, learners will be able to:*															
CLO-1 :	Understand the role of various stakeholders in risk reduction measures	1	85	80	M	M	-	-	-	M	M	-	M	-	-	-
CLO-2 :	Develop management measures by considering preparedness, response and recovery and mitigation techniques	2	85	75	M	M	-	-	M	-	-	-	-	-	M	-
CLO-3 :	Evaluate the key concepts of hazard management systems	3	80	75	M	M	-	-	M	-	-	-	-	-	-	-
CLO-4 :	Distinguish various approaches of pre and post disaster scenarios	2	85	75	M	M	-	-	-	M	M	-	-	-	M	-
CLO-5 :	Integrate the management principles in disaster management	3	85	80	M	-	-	-	-	-	-	-	-	-	-	-
CLO-6 :	Apply various rules and regulation employed in disaster management	2	80	75	M	M	-	-	-	-	-	M	-	-	-	-

Duration (hour)		5	5	5	5	5
S-1	SLO-1	Disaster management; Global Issues; History of Disaster management	Hazards- Geological	Vulnerability and Risk- Quantitative and qualitative approach of risk evaluation	Pre-Disaster Management ; Post Disaster Management	Role of Technology in Disaster Management in India; Emergency Management Systems (EMS)
	SLO-2	Case Study	Case Study	Example of risk evaluation	Discussion- With Case Study	Discussion- NDMP Manual
S-2	SLO-1	Global Scenario (1970's- 80's)- Yokohoma and UN Strategy for Disaster Reduction, Hygo Framework for Action	Hazards- Hydrologic, Meteorological	Risk Perception; Vulnerability	Integrated Developmental Planning for Disaster Management- Role of Government agencies and NGO's in Mitigation & Management	Role of Remote sensing, GIS and GPS in Disaster Management
	SLO-2	Discussion on various strategies	Case Study	Example of Risk assessment	Discussion- With Case Study	Discussion- NDMP Manual

Duration (hour)		5	5	5	5	5
S-3	SLO-1	*Disaster Management- Phases*	*Hazards- Biological/ health related, Infrastructure*	*Principles of mitigation measures; Preparedness*	*Vulnerable Groups in Disasters Management ; Essential Supplies; Site Management, Medical Trauma and Stress Management*	*Disaster Management in India- NDRF*
	SLO-2	*Discussion- NDMP- Manual*	*Case Study*	*Discussion- Need for Preparedness, Role of team work*	*Discussion- With Case Study*	*Discussion- NDMP Manual*
S-4	SLO-1	*Disaster Trends, Relation between Poverty Development*	*Hazards- Transportation, Infrastructure*	*Agencies involved; Mitigation- Types*	*Physical and Socio-economic Impacts of Disasters; Emotional Impacts of Disasters*	*Disaster Management Act (2005), Disaster Management Policy (2009)*
	SLO-2	*Discussion- NDMP- Manual*	*Case Study*	*Discussion on various types of mitigation and their importance*	*Discussion- With Case Study*	*Discussion- NDMP Manual*
S-5	SLO-1	*Disaster Management- Indian Scenario*	*Hazards- Industrial, Intentional*	*Obstacles in Mitigation Process; Role of Insurance*	*Rehabilitation and Reconstruction; Education and Public awareness; Capacity building*	*Major Disasters in India*
	SLO-2	*Case Study*	*Case Study*	*Case Study*	*Discussion- With Case Study*	*Case Studies*

Learning Resources	1. *D. Alexander, Natural Disasters, ULC Press, 1999* 2. *W.N. Carter, Disaster Management: A Disaster Management Handbook, Asian Development Bank, 2008* 3. *Damon P. Coppola, Introduction to International Disaster Management, 3rd edition, Elsevier, 2015* 4. *C.J. Barrow, Developing the Environment: Problems and Management, Harlow: Longman, 1995*	5. *Disaster Management Act "2005", Ministry of Home Affairs, Govt. of India, 2005* 6. *Reports of "National Disaster Management Authority", Govt. of India, 2013* 7. https://nptel.ac.in/courses/105104183/# 8. *https://nptel.ac.in/courses/124107010/*

Learning Assessment									
	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*20%*	*20%*	*15%*	*15%*	10%	10%	-	-
Level 2	Apply Analyze	*20%*	*20%*	*15%*	*15%*	20%	20%	-	-
Level 3	Evaluate Create	*10%*	*10%*	*20%*	*20%*	20%	20%	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
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Course Code	20GNA511T	Course Name	CONSTITUTION OF INDIA	Course Category	A	Audit	L	T	P	C
							1	0	0	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	All Department	Data Book / Codes/ Standards	Nil		

Course Learning Rationale (CLR):	At the end of this course, learners will be able to:
CLR-1 :	Identify the basic provisions in the Indian constitution
CLR-2 :	List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation
CLR-3 :	Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions
CLR-4 :	Identify the power of states, its legislature, Governors role and the state judiciary
CLR-5 :	List the special provisions and functionality of election commission, public service commission, individual tax and GST
CLR-6 :	Build knowledge on the various aspects in the Indian Constitution, its provisions and right of a citizen and the society

Learning			Program Learning Outcomes (PLO)											
1	2	3	1	2	3	4	5	6	7	8	9	10	11	12
Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning
2	80	75	-	-	-	-	-	-	M	H	H	H	-	H
2	75	70	-	-	-	-	-	-	M	H	H	H	-	H
2	80	75	-	-	-	-	-	-	M	H	H	H	M	H
2	75	70	-	-	-	-	-	-	M	H	H	H	M	H
2	85	80	-	-	-	-	-	-	M	H	H	H	H	H
2	85	80	-	-	-	-	-	-	M	H	H	H	M	H

Duration (hour)		3	3	3	3	3
S-1	SLO-1	Meaning of the constitution law and constitutionalism	The Directive Principles of State Policy	President of India (with Powers and Functions)	Governor of the State (with Powers and Functions)	Local Self Government – Constitutional Scheme in India
	SLO-2	Historical perspective of the Constitution of India	Scheme of the Fundamental Right to Equality	Prime Minister of India (with Powers and Functions)	The Chief Minister of the State (with Powers and Functions)	Emergency Provisions : National, President Rule, Financial Emergency
S-2	SLO-1	Salient features and characteristics of the Constitution of India	Scheme of the Fundamental Right to certain Freedom under Article 19	Union Judiciary (Supreme Court) Jurisdiction of the Supreme Court	State Judiciary (High Courts)	Election Commission of India (with Powers and Functions)
	SLO-2	Citizenship	Scope of the Right to Life and	State Government	Union Territories, Panchayats,	The Union Public Service

Duration (hour)		3	3	3	3	3
			Personal Liberty under Article 21			*Commission (with Powers and Functions)*
S-3	SLO-1	*Scheme of the fundamental rights*	*Union Government, Union Legislature (Parliament)*	*State Legislature, Legislative Assembly, Legislative Council*	*Municipalities, Scheduled and Tribal Areas*	*Amendment of the Constitutional Powers and Procedure*
	SLO-2	*The scheme of the Fundamental Duties and its legal status*	*Lok Sabha and Rajya Sabha (with Powers and Functions), Union Executive*	*Powers and Functions of the State Legislature, State Executive*	*Co-operative Societies*	*Income Tax, Goods and Services Tax*

Learning Resources	1. *Durgadas Basu, Introduction to the Constitution of India, Lexis- Nexis, 2015* 2. *Subash C Kashyap, Our Parliament, National Books Trust, 2011*	3. *Kaushal Kumar Agarwal, India's No 1 book on Tax : Simple Language Advanced Problems: Income Tax, Kindle, 2017* 4. *Vivek K R Agarwal, GST Guide for students: Making GST – Good and Simple Tax, Neelam Book House, 2017*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*40%*	-	*30%*	-	*30%*	-	-	-
Level 2	Apply Analyze	*40%*	-	*40%*	-	*40%*	-	-	-
Level 3	Evaluate Create	*20%*	-	*30%*	-	*30%*	-	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers			
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts	
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Course Code	20GNA513J	Course Name	VALUE EDUCATION	Course Category	A	Audit	L	T	P	C
							1	0	1	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	All Department	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	At the end of this course, learners will be able to:	Learning		
		1	2	3
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)
CLR-1 :	Connect the learners to their potential, identify their potential to create a new positive world			
CLR-2 :	Analyze the merits and demerits of different educational systems. Identify the different systems of education			
CLR-3 :	Draw attention towards the weaknesses they are susceptible to and inspire them through positive models			
CLR-4 :	Instill a sense of professional ethics which help them develop a safe comfortable and prosperous society			
CLR-5 :	Cultivate a spirit of willing accommodation in an increasingly diverse world			
CLR-6 :	Strengthen, enhance the spirit of positivity and facilitate positive contribution in various spheres of life			
Course Learning Outcomes (CLO):	*At the end of this course, learners will be able to:*			
CLO-1 :	Equipped with an awareness of their positive energy and power	2	80	75
CLO-2 :	Identify the meaning of 'education'; have a clearer and better understanding in taking education to the masses	2	75	70
CLO-3 :	Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances	2	80	75
CLO-4 :	Realize their professional responsibilities	2	75	70
CLO-5 :	Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes	2	85	80
CLO-6 :	Equip with better understanding of themselves, society they live. Identify responsibilities in creating a peaceful world	2	80	75

Program Learning Outcomes (PLO)															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
L	M	-	-	M	H	-	H	H	H	-	H	-	-	-
M	H	M	-	H	H	M	M	H	H	-	H	-	-	-
M	-	-	-	M	H	M	M	H	H	-	H	-	-	-
H	M	-	-	H	H	H	H	H	H	-	H	-	-	-
M	-	-	-	H	H	H	H	H	H	-	H	-	-	-
M	M	-	-	H	H	H	H	H	H	-	H	-	-	-

Duration (hour)		Visions for Youth	Youth and Education	Youth and Society	Youth as Professionals	Youth in Pluralistic Society
		6	6	6	6	6
S-1	SLO-1	Introduction	Meaning and the significance of education	Need for social values in the present context	Introduction to professional values	Introduction to pluralistic society, forces of globalization
	SLO-2	Quiz	Brainstorming	Poem – "Where the mind is without fear" Write up on various instances from real life	Brainstorming through visual cues	Group Discussion
S-2	SLO-1	Two speeches by great personalities	Overview of different (traditional, modern)educational systems	Individual and group behavior, respect for others	Engineering societies in India	Science and technology intercultural proximity
	SLO-2	Oral presentations	Debate	Case study on recent happenings	Quiz	Narration of stories from various religions to illustrate the oneness of humanity
S-3	SLO-1	Quotes, proverbs relating to the power and potential of youth, Excerpts: Wings of Fire	Overview of different (traditional, modern) educational systems	Civic sense, bullying-substance abuse, uses of expletives	Challenges to be addressed by Engineers in India	Positive, Negetive impact: religion, politics, gender, economic status, aesthetics
	SLO-2	Collecting proverbs highlighting the potential of youth	Debate	Case study on recent happenings	Case Study	Discussion on "To Kill a Mocking Bird"
S-4	SLO-1	Two news articles highlighting the initiatives for social causes by youth	Role of youth in education, Urban and Rural set up, dissemination	Hero worship, gender insensitivity, moral policing	Challenges in different sectors: agriculture	Values required to live in a global society
	SLO-2	Role play in a similar context	Student presentations	Case study on recent happenings	Case Study	Poster presentation on festivals of various religions
S-5	SLO-1	Two news articles highlighting the initiatives for social causes by youth	Designing and framing educational curriculum and materials	Positive contribution by youth in promoting social welfare	Challenges in different sectors: urban development, environment	Learning the etiquettes of various societies
	SLO-2	Role play in a similar context	Students' Presentation based on write ups	Short videos followed by discussions	Group activity (oral and written)	Poster presentation on festivals of various religions
S-6	SLO-1	One song exhibiting the positive energy of youth	The pressing challenges in current educational system	Positive contribution by youth in promoting social welfare	Challenges in different sectors: sustainable development, cyber security	Success of pluralistic society, enliven the society, religious harmony through literary
	SLO-2	Discussion on the song	Collage Design	Short videos followed by discussions	Case Study – from Newspapers	Writing the aspects of pluralistic society based on the text

Learning Resources	1. *Kalam, APJ Abdul. Wings of Fire: AN Autobiography of APJ Abdul Kalam. Ed. Sangam Books Ltd., 1999* 2. *"Banaras Hindu University Speech" and "To Students". The Voice of Truth. General Editor Shriman Narayan. Navajivan Publishing House. pp. 3-13 and pp. 425-30. www.mkgandhi.org* 3. *Piroda, Sam. "Challenges in Science and Technology". www.nfdindia.org/loc19.htm*	4. *Thomas A Address to VTU Students by Narayana Murthy. https://www.karnataka.com/personalities/narayana-murthy/vtu-address-2006/* 5. *World Economic forum. "India's top 7 challenged from skills to water scarcity*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*20%*	*20%*	*15%*	*15%*	*15%*	*15%*	-	-
Level 2	Apply Analyze	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	-	-
Level 3	Evaluate Create	*10%*	*10%*	*15%*	*15%*	*15%*	*15%*	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers

Experts from Industry	Experts from Higher Technical Institutions	Internal Experts		
1. Dr. Usha Kodandaraman, ABK AOTS, drushsk@gmail.com	*1. Dr. S. P.Dhanavel, IIT Madras, dhanavelsp@iitmac.in*	*1. Dr .K.Anbazhagan, SRMIST*	*2. Dr. B. Cauveri, SRMIST*	
2. Mr. Durga Prasad Bokka, TCS, durgaprasad@tcs.com	*2. Ms. Subashree, VIT, Chennai, subashree@vit.ac.in*	*3. Dr. M. M.Umamaheswari, SRMIST*	*4. Dr. Sukanya Saha, SRMIST*	*5. Ms .S. Ramya, SRMIST*

Course Code	20GNA512L	Course Name	PHYSICAL AND MENTAL HEALTH USING YOGA	Course Category	A	Audit	L	T	P	C
							0	0	2	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Centre for Applied Research in Education	Data Book / Codes/ Standards	Nil		

Course Learning Rationale (CLR):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-1 :	Utilize rich Indian heritage and knowledge for self-healing and self-protection from diseases	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
CLR-2 :	Apply meditation for attaining happiness and balancing emotions and state of mind and body																		
CLR-3 :	Intellectually develop oneself by identifying oneness with divine state and transform towards absolute oneness in space																		
CLR-4 :	Socially transform into a meaningful and purposeful individual to both self and society																		
CLR-5 :	Spiritually enlighten oneself by purifying the body, soul and have a blissful existence																		
CLR-6 :	Achieve personal benefits of whole health and wellbeing by practicing yoga for physical, emotional and mental fitness																		
Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:																		
CLO-1 :	Identify Indian heritage, culture. Identify key anatomical structures in the human body and basic exercises for the same	2	80	75	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-
CLO-2 :	Apply yoga meditation practices for emotional development and wellbeing	2	75	70	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-
CLO-3 :	Identify educational and intellectual development methods using five sense realization and transformation	3	80	75	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-
CLO-4 :	Demonstrate human values and emotions through thorough understanding about life, naturopathy and food habits	3	75	70	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-
CLO-5 :	Impact self and society by peaceful coexistence with self-introspection and balanced diet charts	3	85	80	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-
CLO-6 :	Demonstrate yoga exercises and postures to stretch and strengthen the body and mind	3	85	80	-	M	-	-	-	H	H	H	H	H	-	H	-	-	-

Duration (hour)		Physical Development	Emotional Development	Intellectual Development	Social Development	Spiritual Development
		6	6	6	6	6
S-1	SLO-1	Indian Heritage & Culture, Concept of Yoga, Objectives, Science & Art of Yoga	Brain Functions, Bio-Magnetism, Cognitive Mind	Education & Intelligence Development using Yoga. Improving Intelligence	Introduction: Social Intelligence	Spiritual Connect & Yoga: Self-Realization, Self-Awareness, Self-Actualization
	SLO-2	Women and Yoga Practice – Classification, Modern Age, Philosophy of Life	Emotional Intelligences, Managing Stress and Emotions	Learnability through Concentration, Intelligence through learning sense organs	Human values, Ethics & Morality	Cause and Effect Realization (Karma Yoga), Harmony in Life
S-2	SLO-1	Practice1: Standing exercise, Surya Namaskar	Practice4: Surya Namaskar, Standing asanas	Practice7: Yoga for Youthfulness (Kayakalpah Yoga)	Practice10: Kayakalpha, Bhandas, Meditation (Crown)	Practice13: Management of Physical problems (Yoga therapy)
	SLO-2	Meditation (Self Realization), Relaxation	Meditation (Five Sense Realization), Relaxation	Meditation (Five Sense Realization), Relaxation	Self-introspection Practice (Moralization of Desire) & Relaxation	Meditation (Nine centre) & Relaxation
S-3	SLO-1	Physical Health: Body Structure, Diseases and Causes, Science of Human Body	Meditation for Emotional development: Eyebrow Center (Agna) Meditation	Theory of Intellectual Transformation: Divine state origin, absolute space,	Exercises for Self-Introspection: Analysis of thoughts, Moralization of desires	Spiritual Enlightenment
	SLO-2	Yoga &Youthfulness. Benefits, Comparison between other exercises and Yoga	Genetic Centre (Santhi) Meditation. Stress Relaxation Exercises	Transformation of universe, living beings, Intelligence, Knowledge, Wisdom & Peace	Anger Management, Eradicating worries, concerns & challenges	Purifying the Body (Genetic center)
S-4	SLO-1	Practice2: Surya Namaskar, Sitting Exercises	Practice5: Surya Namaskar, Sitting asanas,	Practice8: Kayakalpha Yoga, Pranayama	Practice11: Kayakalpha Yoga, Krisya Yoga	Practice14: Project Submission
	SLO-2	Meditation (Self Realization) – Relaxation	Meditation (Agna) & Relaxation	Meditation (Agna) - Relaxation	Yoga Mudhras, Meditation (Santhi) & Relaxation	Meditation, Introspection, Sublimination
S-5	SLO-1	Exercises: Hands, Legs, Neuro-Muscular breathing, Eye, Ears, Nostrils, kidney, brain	Asanas (Postures) for Body Structure: Full Body Structure Maintenance	Exercises: Intellectual development Brain Crown Centre (Thuriyam) Meditation	Therapy for Social Development: Gestures Yoga (Mudhras) – Body locks (Bhandhas)	Spirituality for Stress Management
	SLO-2	digestive tract, stomach, lungs, spine, hip, neck. Pressure points in our body	Standing, Sitting, Prone & Supine Posture, Benefits of asanas	Five Senses (Panchendriya) Meditation, Consciousness and Law of nature	Indian Medical System: Naturopathy, Food, Nutrition, Diet Chart for Youthfulness	Yoga Practices for blissful existence
S-6	SLO-1	Practice3: Prone & Supine posture Exercises	Practice6: Surya Namaskar, Prone & Supine posture Asanas	Practice9: Kayakalpha, Mudhras, Self- introspection Practice (Thought Analysis)	Practice12: Balancing Asanas,	Practice15: Practical Exam
	SLO-2	Meditation (Self Realization) – Relaxation	Meditation (Shanthi) & Relaxation	Meditation (Santhi), & Relaxation	Meditation (Crown) & Relaxation	Meditation & Relaxation

Learning Resources	1. Sadhguru Jaggi Vasudev, Inner Engineering – A yogi's guide to joy, 2016 2. Shri Shri Ravi Shankar, The Art of stress-free Living, 2011	6. Vivekananda Kenthria Prkasan Trust, Yogam, 2006 7. Swami Chetanananda, Meditation and Its Methods According to Swami Vivekananda,

	3. *Swami Ramdev Ji Yog Its Philosophy and Practice, 2008* 4. *Yogiraj Vethathiri Maharishi, Yoga for Modern Age, Tenth edition, Vethathiri Publications, 2007* 5. *Yogiraj Vethathiri Maharishi, Simplified Physical Exercises, Forty Second edition, Jan-2014*	*Jan 2001* 8. *Dr. Lakshminarain Sharma, Yoga for the cure of Common Diseases, Mar 2016* 9. *Swami Satyananda Saraswati, Asana Pranayama Mudra Bandha, Bihar School of Yoga, 1993* 10. *Dr. Asana Andiappan, Thirumoolar's Astanga Yoga, International Yoga Academy, 2017*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	-	*40%*	-	*30%*	-	*30%*	-	-
	Understand								
Level 2	Apply	-	*40%*	-	*40%*	-	*40%*	-	-
	Analyze								
Level 3	Evaluate	-	*20%*	-	*30%*	-	*30%*	-	-
	Create								
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers

Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
1. Mr. K. Sivakumar, LIC of India, ksivalic1970@gmail.com	*1. Dr. R. Elangovan, Tamilnadu Physical Education and Sports University, relangovantnpesu@yahoo.co.in*	*1. Dr. V. Nithyananthan, SRMIST*
2. Mrs. R. Piramukutty, World Community Service Centre, iramukutty.gdvmvkm@gmail.com	*2.Dr. N. Perumal, Vethathiri Maharishi Institute for Spiritual and Intuitional Education, visionacademy@vethathiri.edu.in*	*2. Dr. S. Jahira Parveen SRMIST*

ACADEMIC CURRICULA & SYLLABUS

Mandatory Courses (M)

For All Specializations

Master of Technology

(Full Time)

Academic Year

2020 - 2021

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
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SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)

Kattankulathur, Chengalpattu District 603203, Tamil Nadu, India

Course Code	20PDM501T	Course Name	CAREER ADVANCEMENT COURSE FOR ENGINEERS-I	Course Category	M	Mandatory	L	T	P	C
							1	0	1	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Career Development Centre	Data Book / Codes/ Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	Become an expert in communication and problem solving skills
CLR-2 :	Recapitulate fundamental mathematical concepts and skills
CLR-3 :	Strengthen writing skills professionally and understand commercial mathematical applications
CLR-4 :	Identification of relationships between words based on their function, usage and characteristics
CLR-5 :	Sharpen logical and critical reasoning through skillful conceptualization
CLR-6 :	Acquire the right knowledge, skill and aptitude to face any competitive examination

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
CLO-1 :	Acquire communication and problem solving skills	2	80	75	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-
CLO-2 :	Build a strong base in the fundamental mathematical concepts	2	75	70	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-
CLO-3 :	Acquire writing skill to communicate with clarity	2	80	75	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-
CLO-4 :	Use apt vocabulary to embellish language	3	75	70	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-
CLO-5 :	Gain appropriate skills to succeed in preliminary selection process for recruitment	3	85	80	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-
CLO-6 :	Enhance aptitude skills though systematic application of knowledge	2	85	80	-	H	-	H	-	-	-	-	H	H	-	H	-	-	-

Duration (hour)		6	6	6	6	6
S-1	SLO-1	Types of numbers, Divisibility tests	Fractions and Decimals, Surds	Percentage - Introduction	Sentence Correction	Number and Alphabet Series
	SLO-2	Solving Problems	Solving Problems	Solving Problems	Practice	Direction Test
S-2	SLO-1	LCM and GCD	Square roots, Cube roots, Remainder	Percentage Problems	Reading Comprehension	Blood Relations
	SLO-2	Solving Problems	Solving Problems	Solving Problems	Practice	Arrangements Linear, Circular

Duration (hour)		6	6	6	6	6
S-3	SLO-1	Unit digit, Number of zeroes, Factorial notation	Identities	Profit and Loss	Reading Comprehension	Ranking
	SLO-2	Solving Problems	Solving Problems	Solving Problems	Practice	Practice
S-4	SLO-1	Verbal Reasoning-Vocabulary	Spotting Errors	Discount	Reading Comprehension	Critical Reasoning-Strengthening
	SLO-2	Practice	Practice	Solving Problems	Practice	Practice
S-5	SLO-1	Verbal Reasoning-Vocabulary	Spotting Errors	Sentence Correction	Linear Equations	Critical Reasoning-Weakening
	SLO-2	Practice	Practice	Practice	Solving Problems	Practice
S-6	SLO-1	Verbal Reasoning-Vocabulary	Spotting Errors	Sentence Correction	Logical Reasoning-Intro	Critical Reasoning-Assumption
	SLO-2	Practice	Practice	Practice	Coding and Decoding	Practice

Learning Resources	1. Khattar D. "Quantitative Aptitude", Pearson's Publications, Third Edition (2015). 2. Praveen R.V. "Quantitative Aptitude and Reasoning", EEE Publications, Third Edition (2016) 3. Guha A. "Quantitative Aptitude", TATA McGraw Hill Publications, Sixth Edition (2017). 4. P.A. Anand, "Quantitative Aptitude for Competitive Examination", WILEY Publications (2019)	5. Arihant. "IBPS PO - CWE Success Master", Arihant Publications(I) Pvt.Ltd – Meerut, First Edition (2018) 6. Nishit Sinha. "Verbal Ability for CAT", Pearson India, First Edition (2018). 7. Archana Ram, "Placementor", Oxford University Press, (2018) 8.Bharadwaj A.P. " General English for Competitive Examination", Pearson Education, First Edition (2013) 9. Thorpe S. "English for Competitive Examination", Pearson Education, Sixth Edition (2012).

Learning Assessment									
	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	40 %	-	30 %	-	30 %	-	-	-
Level 2	Apply Analyze	40 %	-	40 %	-	40 %	-	-	-
Level 3	Evaluate Create	20 %	-	30 %	-	30 %	-	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers		
Experts from Industry	Internal Experts	
1. Mr. Ajay Zener, Career Launcher, ajay.z@careerlauncher.com	Dr. P. Madhusoodhanan, Head CDC, SRMIST	Dr. M. Snehalatha,, SRMIST
	Mr. J.Jayapragash , Assistant Professor, SRMIST	Dr.A.Clement, SRMIST

Course Code	20PDM502T	Course Name	CAREER ADVANCEMENT COURSE FOR ENGINEERS - II	Course Category	M	Mandatory	L	T	P	C
							1	0	1	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Career Development Centre	Data Book / Codes/ Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-1 :	Recapitulate fundamental mathematical concepts and building the resume	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
CLR-2 :	Become an expert in communication and problem solving skills																		
CLR-3 :	Sharpen interpretational skills through skillful conceptualization,																		
CLR-4 :	Sharpen analytical reasoning skills and professional skills																		
CLR-5 :	Utilize professionalism with idealistic, practical and moral values that govern the behavior																		
CLR-6 :	Acquire the right knowledge, skill and aptitude to face any competitive examination																		
Course Learning Outcomes (CLO):	**At the end of this course, learners will be able to:**																		
CLO-1 :	Build a strong base in the fundamental mathematical concepts and resume	2	80	75	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-
CLO-2 :	Acquire communication and problem solving skills.	2	75	70	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-
CLO-3 :	Gain appropriate skills to succeed in preliminary selection process for recruitment	2	80	75	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-
CLO-4 :	Acquire interpretational skills and professional skills	3	75	70	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-
CLO-5 :	Develop professionalism with idealistic, practical and moral values	3	85	80	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-
CLO-6 :	Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic	2	85	80	-	H	-	M	-	-	-	-	H	H	-	H	-	-	-

Duration (hour)		6	6	6	6	6
S-1	SLO-1	Ratio and Proportion-Intro	Sets-Rules	Group Discussion-3	Data Sufficiency-Intro	Personal Interview
	SLO-2	Solving Problems	Solving Problems	Practice	Solving Problems	Practice
S-2	SLO-1	Ratio and Proportion	Sets-Identities, Venn Diagram	Group Discussion-4	Data Sufficiency	Personal Interview
	SLO-2	Solving Problems	Solving Problems	Practice	Solving Problems	Practice
S-3	SLO-1	Mixture and Solutions-Intro	Functions-Intro	Group Discussion-5	Analytical Reasoning-Intro	Mock Interview

Duration (hour)		6	6	6	6	6
	SLO-2	*Solving Problems*	*Solving Problems*	*Practice*	*Solving Problems*	*Mock Interview*
S-4	SLO-1	*Mixture and Solutions*	*Group Discussion- Do's and Don'ts*	*Data Interpretation-Intro*	*Analytical Reasoning*	*Mock Interview*
	SLO-2	*Solving Problems*	*Practice*	*Solving Problems*	*Solving Problems*	*Mock Interview*
S-5	SLO-1	*Profile Building*	*Group Discussion-1*	*Data Interpretation-Tables, Pie Chart*	*Personal Interview-Do's and Don'ts*	*Mock Interview*
	SLO-2	*Profile Building*	*Practice*	*Solving Problems*	*Practice*	*Mock Interview*
S-6	SLO-1	*Resume Building*	*Group Discussion-2*	*Data Interpretation-Lines, Bar Graphs*	*Personal Interview*	*Quantitative Reasoning Revision*
	SLO-2	*Resume Building*	*Practice*	*Solving Problems*	*Practice*	*Solving Problems*

Learning Resources	*1. Khattar D. "Quantitative Aptitude", Pearson's Publications, Third Edition (2015).* *2. Guha A. "Quantitative Aptitude", TATA McGraw Hill Publications, Sixth Edition (2017).* *3. Butterfield J. "Soft Skills for Everyone", Cengage Learning India Private Ltd, First Edition, (2011).*	*4. Bono E.D. "Six Thinking Hats is a book" , Little Brown and Company, First Edition (1981)* *5. P.A. Anand, "Quantitative Aptitude for Competitive Examination", WILEY Publications (2019)* *6. Archana Ram, "Placementor", Oxford University Press, (2018)*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*40 %*	-	*30 %*	-	*30 %*	-	-	-
Level 2	Apply Analyze	*40 %*	-	*40 %*	-	*40 %*	-	-	-
Level 3	Evaluate Create	*20 %*	-	*30 %*	-	*30 %*	-	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

Course Designers		
Experts from Industry	Internal Experts	
1. Mr. Ajay Zener, Career Launcher, ajay.z@careerlauncher.com	*1. Dr. P. Madhusoodhanan, Head CDC, SRMIST*	*2. Dr. M. Snehalatha,, Assistant Professor, SRMIST*
	3. Mr.P.Priyanand , Assistant Professor, SRMIST	*4. Mrs.Kaviatha Srisarann, Assistant Professor, SRMIST*

Course Code	20PDM601T	Course Name	CAREER ADVANCEMENT COURSE FOR ENGINEERS - III	Course Category	M	Mandatory	L	T	P	C
							1	0	1	0

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Career Development Centre			Data Book / Codes/Standards	Nil

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	acquire knowledge on planning, preparing and designing a learning program
CLR-2 :	prepare effective learning resources for active practice sessions
CLR-3 :	facilitate active learning with new methodologies and approaches
CLR-4 :	create balanced assessment tools
CLR-5 :	hone teaching skills for further enrichment
CLR-6 :	define standards, goals and objectives

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
CLO-1 :	Build a strong foundation in designing a lesson plan	2	80	75	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-
CLO-2 :	Acquire knowledge of learning resources for effective delivery	2	75	70	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-
CLO-3 :	Sharpen teaching skills with the latest methodologies and techniques	2	80	75	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-
CLO-4 :	Develop practical assessment tools to ensure validity and flexibility	3	75	70	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-
CLO-5 :	Enhance effective presentation and teaching methods	3	85	80	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-
CLO-6 :	Reinforce Bloom's Taxonomy of educational goals and objectives	2	85	80	-	H	H	H	M	-	-	-	H	H	-	H	-	-	-

Duration (hour)		6	6	6	6	6
S-1	SLO-1	Lower and Higher order learning	Definition and purpose of assessment	Peer Teaching practice	Live Teaching Sessions	Live Teaching Sessions
	SLO-2	Outcomes from lower order learning	Practice	Discussion and feedback	Live Teaching Sessions	Live Teaching Sessions
S-2	SLO-1	Planning and preparing a learning programme and session	Distinction between formative and summative assessment	Peer Teaching practice	Live Teaching Sessions	Live Teaching Sessions
	SLO-2	Practice	Examples and discussions	Discussion and feedback	Live Teaching Sessions	Live Teaching Sessions
S-3	SLO-1	Teacher and Student-Centered class room	Instructional materials	Cooperative learning procedure	Live Teaching Sessions	Live Teaching Sessions

Duration (hour)		6	6	6	6	6
	SLO-2	*Discussion*	*Examples and discussion*	*Different models of cooperative learning*	*Live Teaching Sessions*	*Live Teaching Sessions*
S-4	SLO-1	*Roles of teachers and students*	*Instructional design*	*Limitations of cooperative learning*	*Live Teaching Sessions*	*Live Teaching Sessions*
	SLO-2	*Discussion*	*Practice*	*Discussion*	*Live Teaching Sessions*	*Live Teaching Sessions*
S-5	SLO-1	*Discussion Strategies*	*Presentation of lesson plans*	*Structure of a lecture*	*Live Teaching Sessions*	*Live Teaching Sessions*
	SLO-2	*Practice*	*Discussion*	*Practice*	*Live Teaching Sessions*	*Live Teaching Sessions*
S-6	SLO-1	*Bloom's Taxonomy of educational goal*	*Group Work in learning*	*Live Teaching Sessions*	*Live Teaching Sessions*	*Live Teaching Sessions*
	SLO-2	*Practice*	*Discussion*	*Live Teaching Sessions*	*Live Teaching Sessions*	*Live Teaching Sessions*

Learning Resources	*1. Barker I. "Cambridge International Diploma for Teachers and Trainers", Cambridge University Press, 2006.* *2. Whitehead Jack, Creating a Living Educational Theory from Questions of the kind: How do I improve my Practice? Cambridge Journal of Education, 2006*	*3. Vicki Phillips and Lynn Olson, "Ensuring Effective Instruction: How do I improve teaching using multiple measures?" Bill & Melinda Gates Foundation, 2013* *4. Dr G M Chaudhary, "Teaching Methodology: Effective Teaching Strategies", Independently Published , 2019*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (100% weightage)						Final Examination (0% weightage)	
		CLA – 1 (30%)		CLA – 2 (50%)		CLA – 3#(20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*40 %*	-	*30 %*	-	*30 %*	-	-	-
Level 2	Apply Analyze	*40 %*	-	*40 %*	-	*40 %*	-	-	-
Level 3	Evaluate Create	*20 %*	-	*30 %*	-	*30 %*	-	-	-
	Total	100 %		100 %		100 %		-	

CLA – 3 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, and Conf. Paper etc.

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