

FACULTY OF ENGINEERING
Scheme of Instructions
for

Four Year Degree Programme of Bachelor of Engineering (B.E)

in

Computer Science and Engineering
Artificial Intelligence and Machine Learning

(With effect from the academic year 2023-24)

(Approved by College Academic Council on --- -- ----)

Empower Women; Impact the World



ESTD. 2008


Stanley College of Engineering and Technology for Women (Autonomous)

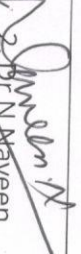
(Affiliated to Osmania University)
(Accredited by NAAC with "A" Grade)
Abids, Hyderabad – 500 001, Telangana.


**B. E. 4 Year (8 semesters) Regular Programme in
Artificial Intelligence and Machine Learning
Course Structure**

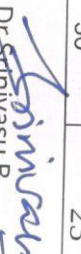
(Applicable for the Batch admitted from the Academic Year 2023-24)

Semester I											
S. NO	Code	Course Title	Scheme of Instruction				Scheme of Examination				Credits
			L	T	D/P	CONTA CT HOURS	CIE	SEE	DURATION IN HOURS		
Theory Courses											
1	SBS101MT	Mathematics-I	4			4	40	60	3		4
2	SES103EE	Foundation of Electrical Electronics Engineering	4			4	40	60	3		4
3	SBS902PH	Applied Physics	4			4	40	60	3		4
4	SES101AM	Programming for Problem Solving	3			3	40	60	3		3
Practical/Laboratory Courses											
5	SHS911EG	English Lab			2	2	40	60	3		1
6	SES113EE	Foundation of Electrical Electronics Engineering Lab			2	2	40	60	3		1
7	SBS912PH	Applied Physics Lab			2	2	40	60	3		1
8	SES111AM	Programming for Problem Solving Lab			4	4	40	60	3		2
9	SES914ME	Engineering Workshop			4	4	40	60	3		2
10	SHS916AM	Design Thinking			2	2	40	60	3		1
			15		16	31	400	600	30		23


1. Prof K Syamala
(University nominee)


2. Dr N Aaveen
(Subject Expert from UOH)



3. Chaitanya C
(Expert from Industry)

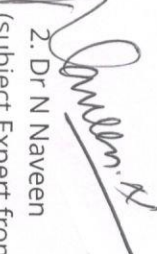

4. Dr Srinivasu B
(chairperson - BOS)


**B. E . 4 Year (8 semesters) Regular Programme in
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(Applicable for the Batch admitted from the Academic Year 2023-24)

Semester II

S. NO	Code	Course Title	Scheme of Instruction			Scheme of Examination			Credits	
			L	T	D/P	CONTA CT HOURS	CIE	SEE		DURATION IN HOURS
Theory Courses										
1	SBS202 MT	Mathematics-II	4			4	40	60	3	4
2	SES201AM	Data Structure	4			4	40	60	3	4
3	SBS904CH	Applied chemistry	4			4	40	60	3	4
4	SHS901EG	English	2		-	2	40	60	3	2
5	SHS902EG	Universal Human Values	2			2	40	60	3	2
Practical/Laboratory Courses										
6	SES211AM	Data Structures Lab			2	2	40	60	3	1
7	SBS914CH	Chemistry Lab			2	2	40	60	3	1
8	SES915ME	Engineering Graphics			4	4	40	60	3	2
9	SPW211AM	IDEALab			2	2	40	60	3	1
			16		10	26	360	540	27	21


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Semester III

S. NO	Code	Course Title	Scheme of Instruction			Scheme of Examination			Credits	
			L	T	D/P	CONTA CT HOURS	CIE	SEE		DURATION IN HOURS
Theory Courses										
1	SPC301AM	Discrete Mathematics & Graph Theory	3			3	40	60	3	3
2	SPC302AM	OOPS using Java	3			3	40	60	3	3
3	SPC303AM	Database Management Systems	3			3	40	60	3	3
4	SP304AM	Data Visualization	3	-		3	40	60	3	3
5	SBS301MT	Probability and Statistic for Machine Learning	3	1		4	40	60	3	4
6	SAU903CH	Environmental Science	2			2	40	60	3	0
Practical/Laboratory Courses										
7	SPC311AM	OOPS using Java Lab			3	3	40	60	3	1.5
8	SPC312AM	Database Management Systems Lab			3	3	40	60	3	1.5
9	SPC313AM	Data Visualization Lab			2	2	40	60	3	1
			17	1	8	26	360	540	27	20


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Semester IV

S. NO	Code	Course Title	Scheme of Instruction			Scheme of Examination			Credits			
			L	T	D/P	CONTA CT HOURS	CIE	SEE		DURATION IN HOURS		
Theory Courses												
1	SPC401AM	Computer System Design	3			3	40	60	3	3		
2	SPC402AM	Operating System	3			3	40	60	3	3		
3	SPC403AM	Artificial Intelligence	3			3	40	60	3	3		
4	SPC404AM	Automata Theory and Compiler Design	3			3	40	60	3	3		
5	SPC405 AM	Data Analytics	3			3	40	60	3	3		
6	SMC901HS	Indian Constitution	2			2	40	60	3	0		
Practical/Laboratory Courses												
7	SPC411AM	OS & CD Lab			3	3	40	60	3	1.5		
8	SPC413AM	Data Analytics Lab			3	3	40	60	3	1.5		
9	SHS912EG	Advanced Communication Skills lab			2	2	40	60	3	1		
10		Internship-1	(to be evaluated in 5 th semester. To be carried out in summer after 4 th semester))			17	8	25	360	540	27	19

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Semester V

S.NO	Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	D/P	CONTA CT HOURS	CIE	SEE	DURATION IN HOURS	
Theory Courses										
1	SPC501IAM	Machine Learning	3			3	40	60	3	3
2	SPC502AM	Design and Analysis of Algorithms	3			3	40	60	3	3
3	SPC503AM	Computer Networks	3			3	40	60	3	3
4	SPC504AM	Software Engineering	3	-		3	40	60	3	3
5	SPE19XAM	Professional Elective -1	4			4	40	60	3	4
Practical/Laboratory Courses										
6	SPC511AM	Machine Learning Lab			2	2	40	60	3	1
7	SPC 512AM	CN & Software Engineering Lab			2	2	40	60	3	1
8	SPC513AM	Web and Internet Technologies Lab		1	2	3	40	60	3	2
9	SPW511AM	Internship -1 (to be evaluated in 5 th semester. To be carried out in summer after 4 th semester)	16	1	6	23	50	-	3	2
							370	480	27	22

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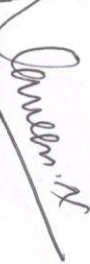
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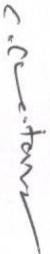
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Semester VI

S. NO	Code	Course Title	Scheme of Instruction			Scheme of Examination			Credits		
			L	T	D/P	CONTA CT HOURS	CIE	SEE		DURATION IN HOURS	
Theory Courses											
1	SHS901BM	Managerial Economics and Financial Accounting	4			3	40	60	3	4	
2	SPC601AM	Cloud Computing	3			3	40	60	3	3	
3	SPC602AM	Natural Language Processing	3			3	40	60	3	3	
4	SPC603AM	Image & Video Analytic	3	-		3	40	60	3	3	
5	SPE29XAM	Professional Elective - 2	4			4	40	60	3	4	
Practical/Laboratory Courses											
6	SPC611AM	Natural Language Processing Lab			2	2	40	60	3	1	
7	SPC612AM	Image & Video Analytic Lab			2	2	40	60	3	1	
8	SPC613AM	Cloud computing Lab			2	2	40	60	3	1	
9	SPW611AM	Mini Project			4	4	40	60	3	2	
10		Internship - 2	The students have to undergo a Internship-2 of 6 week duration after VI-Semester SEE							27	22
			17		10	26	360	540			


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Semester VII

S.NO	Code	Course Title	Scheme of Instruction			CIE	SEE	DURATION IN HOURS	Credits	
			L	T	D/ P					CONTA CT HOURS
Theory Courses										
1	SPC701AM	Deep Learning	3			3	40	60	3	
2	SPC702AM	Optimization Techniques	3			3	40	60	3	
3	SPE39XAM	Professional Elective – 3	3			3	40	60	3	
4	SPE49XAM	Professional Elective – 4	4	-		4	40	60	4	
5	SOE19XXX	Open Elective-1	3			3	40	60	3	
Practical/Laboratory Courses										
6	SPC711AM	Deep Learning Lab			2	2	40	60	1	
7	SPE712AM	PE-3 Lab			2	2	40	60	1	
8	SPW711AM	Project work -1			6	6	40		3	
9	SPW712AM	Internship -2 (to be evaluated in 7th semester. To be carried out in summer after 6th semester)					50		3	
			16		10	26	370	420	27	23


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Semester VIII											
S.NO	Code	Course Title	Scheme of Instruction			Scheme of Examination			Credits		
			L	T	D/P	CONTACT HOURS	CIE	SEE		DURATION IN HOURS	
Theory Courses											
1	SOE29XXX	Open Elective-2	3			3	40	60	3	3	
Practical/Laboratory Courses											
8	SPW811AM	Project work -2				20	20	40	120	3	10
			3			20	23	80	180	6	13

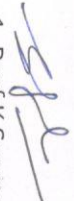
PC: Professional Course **PE:** Professional Elective **MC:** Mandatory Course


PW: Project Work **L:** Lecture **T:** Tutorial **P:** Practical **D:** Drawing


AU: Audit Course **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Examination

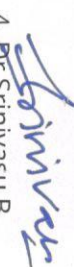
Note:

- Each contact hour is a Clock Hour
- The duration of the practical class is two clock hours, however it can be extended wherever necessary, to enable the student to complete the experiment.


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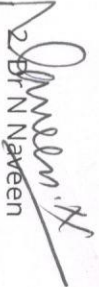

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Micro/Minor Specialization

Thread Name	PE-1	PE-2	PE-3	PE-4
Data Science	Big Data Analytics	Business Analytics	Recommendation System	Text & speech Analysis
Emerging Technologies	Computer graphics & Game Theory	Robotic Process Automation	Augmented Reality & Virtual Reality	3D-Printing & Designing
Advanced AI and ML	Computer graphics & Game Theory	Knowledge Engineering	Reinforcement Learning	Cognitive Computing/Conversational AI
Advanced Web Development	Agile software Fundamentals	Web Application-2 (React, Node.js, JQuery)	Web Frame Work Tools (django , express.js, Ruby	Agile Methodology with Frame work(AWS)
Advanced AI and ML	Computer graphics & Game Theory	Knowledge Engineering	Reinforcement Learning	Cognitive Computing/Conversational AI
Cyber Security and Data Privacy	Information Security	Cyber Security	Digital & Mobile forensic	Crypto Currency & Block chain Technology

Professional Elective-1		
S. No	Subject Code	Subject Name
1.	SPE1901AM	Agile software Fundamentals
2.	SPE1902AM	Big Data Analytics
3.	SPE1903AM	Computer graphics & Game Theory
4.	SPE1904AM	Mobile Application Development
5.	SPE1905AM	Information Security


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 (chairperson - BOS)


Professional Elective-2		
S. No	Subject Code	Subject Name
1.	SPE2901AM	Business Analytics
2.	SPE2902AM	Robotic Process Automation
3.	SPE2903AM	Knowledge Engineering
4.	SPE2904AM	Web Application((React, Node.js, JQuery)
5.	SPE2905AM	Cyber Security


Professional Elective-3		
S. No	Subject Code	Subject Name
1.	SPE3901AM	Recommendation System
2.	SPE3902AM	Augmented Reality & Virtual Reality
3.	SPE3903AM	Reinforcement Learning
4.	SPE3904AM	Web Frame Work Tools (django , express.js, Ruby
5.	SPE3905AM	Digital & Mobile forensic

Professional Elective-4		
S. No	Subject Code	Subject Name
1.	SPE4901AM	Text & speech Analysis
2.	SPE4902AM	3D-Printing & Designing


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3.	SPE4903AM	Cognitive Computing/Conversational AI
4.	SPE4904AM	Agile Methodology with Frame work(AWS)
5.	SPE4905AM	Crypto Currency & Block chain Technology

Comparison between AICTE Model curriculum CSE-AI&ML and Stanley CSE-AI&ML Proposed

S. No	Category	Credits breakup for	
		AICTE -AI&ML	Stanley-AI& ML (present)
1.	Humanities and Social Sciences including Management courses	10*	11
2.	Basic Science courses	16*	22
3.	Engineering Science courses	8*	19
4.	Professional core courses(Branch Specific)	71*	69
5.	Professional Elective courses (Branch Specific)	16*	16
6.	Open Elective Courses (from Humanities, Technical Emerging or other Subjects)	6*	6
7.	Project work, seminar and internship in industry or elsewhere	38*	20
8.	audit courses [Environmental Sciences, Indian Constitution]	(non-credit)	(non-credit)
	Total	165*	163

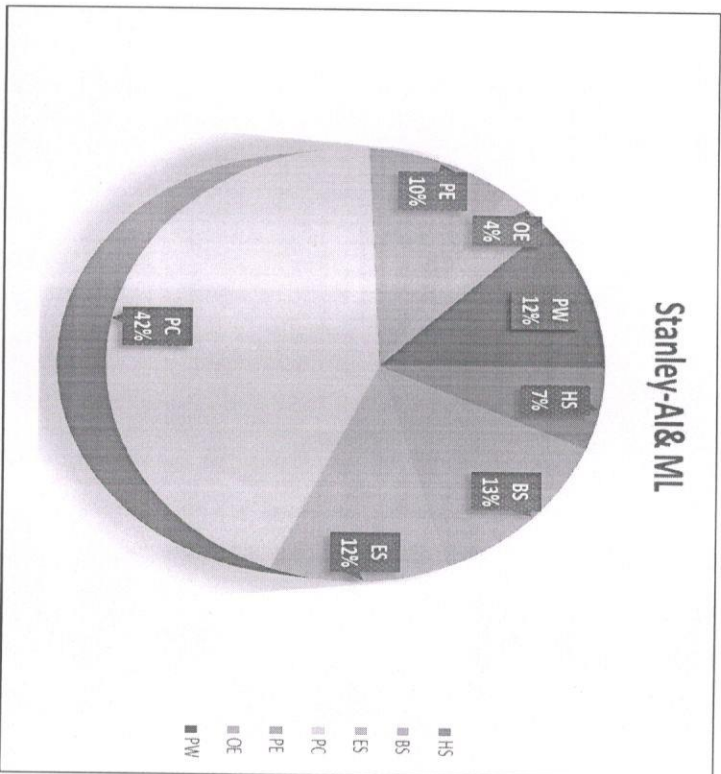
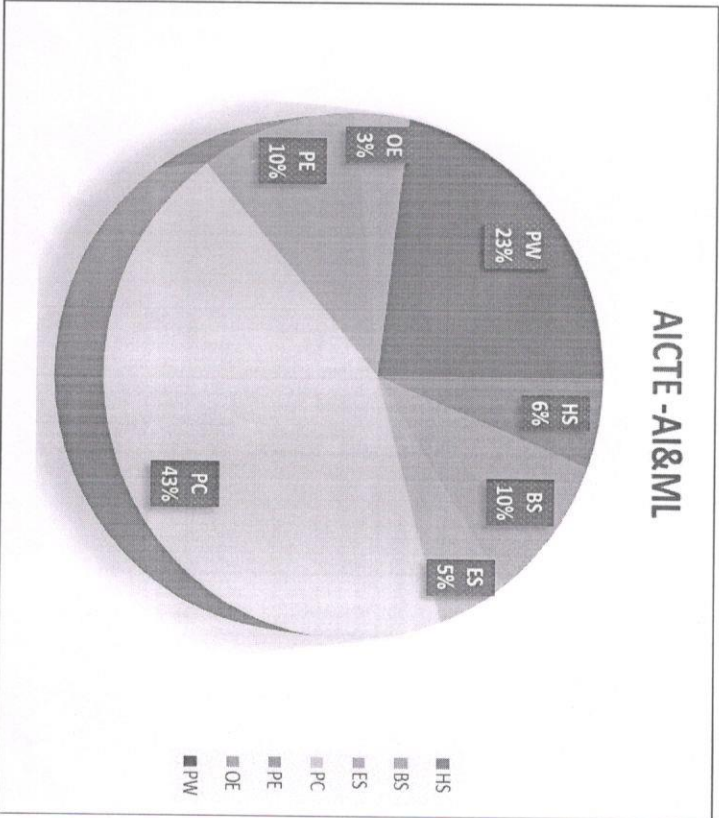
*Minor variation is allowed as per need of the respective disciplines.

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S. K. Syamala
 1. Prof K Syamala
 (University nominee)

Naveen
 2. Dr N Naveen
 (subject Expert from UOH)

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Srinivasu B
 4. Dr Srinivasu B
 (chairperson - BOS)

HUMANITIES & SOCIAL SCIENCES COURSES [HSI]

AICTE Model Curriculum (CSE)-AI&ML	Stanley-R23 AI&ML Proposed
HS101 - Communication Skills (2+1)	English (2+1)
HS-102 Design Thinking (1)	Design Thinking (1)
HS 401 Theory of Computation Ecosystems(3)	
HSMC – H-102 Universal Human Values (3)	Universal Human Values (2)
	Advanced Communication Skills (1)
	Finance & Accounting (4)
TOTAL = 10	TOTAL = 11

BASIC SCIENCE COURSE [BSCI]

AICTE Model Curriculum (CSE-AI&ML) (2022)	Stanley-R23 (CSE-AI&ML) Proposed
BSC-101 Physics-I (3+1)	BS101 Physics (5)
BSC-102 Mathematics-I (4)	BS102 Mathematics-I (4)
BSC-201 Mathematics-II (4)	BS201 Mathematics-II (4)
BSC-202 Chemistry-I (3+1)	BS202 Chemistry (5)
	BS401 Mathematics-III (4)
TOTAL = 16	TOTAL = 22

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ENGINEERING SCIENCE COURSES [ESI]	
AICTE Model Curriculum (GSE-AI&ML) (2022)	Stanley-R23 (AI&ML)Proposed
	ESC-103 Foundation of Electrical Electronics Engineering(4+1)
	ESC-102 Engineering Graphics & Design (2)
ESC-101 Problem Solving and Programming (4)	ES101 Problem Solving and Programming (3+2)
ESC-102 Mathematical Concepts for AI(4)	SES915ME Engineering Workshop(2)
	ESC 201 Data Structures(4+1)
TOTAL = 8	TOTAL = 19

PROFESSIONAL CORE COURSES [PCC]	
AICTE Model Curriculum (GSE-AI&ML) (2022)	Stanley-R23 (GSE -AI&ML)Proposed
PC-202 Object Oriented Programming(4)	PCC AI- 302 OOPS using Java Programming (3+1.5)
PC-203 Data Structure (4)	PCC AI-301 Discrete Mathematics & Graph Theory (3)
PC-204 Discrete Mathematics Structures(4)	PCC AI 304 Data Visualization(3+1)
	PCC AI- 401 Computer System Design(3)
PC-205 Modern Computer Architecture(3)	PCC AI-502 Design Analysis and Algorithms (3)
PC-301 Algorithm Analysis and Design(4)	PCC AI-303 Database Management System (3+1.5)
PC-302 Database Systems(4)	PCC AI-503 Computer Networks (3)
PC-303 Computer Networks(4)	PCC AI- 601 Machine Learning(3+1)
PC-304 Introduction to Machine Learning(4)	PCC AI-501 Artificial Intelligence (3)
PC-305 Artificial Intelligence(4)	PCC AI-404 Automata Theory and CD(3)
PC-401 Theory of Computation(4)	PCC AI-504 Software Engineering (3+1)
PC-402 Software Engineering(4)	

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PC-403 Deep Learning(4)	PCC AI-701 Deep Learning(3+1)
PC-404 Operating System(4)	PCC AI-402 Operating Systems(3+1.5)
PC-501 Data and Visual analytics in AI(4)	PCC AI-403 Data Analytics(3+1.5)
PC-502 Optimization Techniques in Machine Learning(4)	PCC AI-702 Optimization Techniques(3)
PC-503 Natural Language Processing	PCC AI-602 Natural Language Processing(4)
PC-502 Advanced Machine Learning(4)	PCC AI-603 Image and Video analytics(4)
PC 701 Soft Computing(4)	PCC AI- Web and Internet Technologies Lab(2)
	PCC IT-601 Cloud Computing (4)
TOTAL = 71	TOTAL=69


PROFESSIONAL ELECTIVE COURSES[PECI]	
AICTE Model Curriculum (CSE-AI&ML) (2022)	Stanley-R23 (CSE-AI&ML)Proposed
PE001 (4)	PE001 (4)
PE002 (4)	PE002 (4)
PE003 (4)	PE003 (4)
PE004 (4)	PE004 (4)
TOTAL = 16	TOTAL = 16

OPEN ELECTIVE COURSES[OEC]	
AICTE Model Curriculum (CSE-V) (2022)	Stanley-R23 (CSE-AI &ML)Proposed
OEC Open Elective – I (3)	OEC Open Elective – I (3)
OEC Open Elective – II (3)	OEC Open Elective – II (3)
TOTAL = 06	TOTAL = 06



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PROJECT WORK, SEMINAR AND INTERNSHIP IN INDUSTRY	
AICTE Model Curriculum (CSE-AI&ML) (2022)	Stanley-R23 (CS-AI&ML)Proposed
	Idea Lab / Field Work(1)
EEEC 401,501 Minor Project (3+3)	SPW AM-611 mini Project (2)
EEEC-601 Internship(16)	SPW AM-511 Summer Internship – I (2)
	SPW AM-711 Summer Internship – 2 (2)
EEEC 701,801 Capstone project I &II(6+10)	SPW AM-712 Project-I (3)
	SPW AM-811 Project-II (10)
TOTAL = 38	TOTAL = 20


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EM	MC (0C, 2S)	HS (11C, 5S)	BS (22C, 5S)	ES (28C, 8S)	PC (56C, 14S)	PE (16C, 5S)	OE (9C, 3S)	Project (15)	Total CRED ITS	Total Subje cts
SE M 1		ENG Lab (1)+D T(1)	M1 (4), PHY(4) +LAB (1)	PPS (3) +Lab (2), WS LAB (2) + FEEE(4)+Lab(1)				Field work/I DEA Lab(1)	23	4 Th 5 Lab
SE M 2	MC-1	ENG (2) +UHV (2)+ LAB(1)	M2 (4), CHE (4), CHE LAB(1)	DS (4) + Lab (1), Graphics Lab (2)					21	5 Th 4 Lab MC-1
SE M 3	MC-2	Adv. Com m. skill Lab(1)	M3(4)		Java (4.5)+DBMS (4.5)+DMGT (3)+DV(4)				21	5 Th 3 Lab MC-1
SE M 4		MEEFA (4)			CSD(3)+AI(3)+ AT&CD(3) + OS(3), + Lab (1.5) DVA(3)+ Lab(1.5)				21	
SE M 5					ML (3+1)+ DAA(3)+ CN(3) + SE(3)+lab(1) + WIT (2)	PE I (4)		INTER N-1 (2) (Done at	22	5 Th 3 Lab

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SE M 6					CC(3+1)+NLP(3+1)+IMG &VIDE(3+1)	PE II (4)		Sem(4) Mini-Proj(2)	21	5 Th 3 Lab			
SE M 7					DL(3+1) OPTIMIZATION(3)	PE-III(3) + PE-IV(4) +lab (1)	OE1 (3)	INTER N-2 (2) +Proj ect -1 (3)	24				
SE M 8							OE 2 (3)	Proj ect -2 (10)	13	1 Th 1 proj			
Total	0	11	22	19	69	16	6	20	163				

1. Prof K Syamala
(University nominee)



2. Dr N Naveen
(subject Expert from UOH)



3. Chaitanya C
(Expert from Industry)



4. Dr Srinivasu B
(chairperson - BOS)

