FACULTY OF ENGINEERING

Scheme of Instruction & Examination

For

Four Year Degree Programme of

Bachelor of Engineering (B.E)

in

Artificial Intelligence and Data Science

(With effect from the academic year 2021–22)

Estd. 2008

STANLEY COLLEGE OF ENGINEERING AND TECHNOLOGY FOR WOMEN (AUTONOMOUS)

(Affiliated to Osmania University)

(Accredited by NAAC with "A" Grade)

ABIDS, HYDERABAD-500001,Telangana.

Abbreviation	Meaning
HS	Humanities, Social Sciences and Management
BS	Basic Sciences including Mathematics, Physics and Chemistry
ES	Engineering Sciences including Workshop, Drawing, Basic Electrical / Electronics
PC	Professional Core Courses
PE	Professional Elective Courses
OE	Open Elective Courses
PW	Project Work
MC	Mandatory Courses
AC	Audit Courses
PY	Philosophy
EC	Electronics and Communication Engineering.
CE	Civil Engineering,
MP	Mechanical / Production Engineering
IT	Information Technology
CS	Computer Science Engineering
EE	Electrical and Electronics Engineering
CM	Computer Engineering
AD	Artificial Intelligence and Data Science
L	Lecture
T	Tutorial
P	Practical
G	Grade
D	Drawing
CIE	Continuous Internal Evaluation
SEE	Semester End Evaluation
	Each contact hour is a clock hour
	The duration of the Practical class is two hours; however, it can be extended wherever necessary, to enable the student to complete the experiment.

Keywords	Definition
HS	Courses offered in the area of humanities and social sciences like communication & managerial skills.
BS	Courses of foundational nature in the areas of Mathematics, Physics, Chemistry, Biology etc.
ES	Courses belonging to the basic evolutionary aspects of a Particular Engineering from all other branches of Engineering.
PC	Courses that are fundamental and compulsory constituents of the respective engineering discipline.
PE	Courses those are discipline-specific to stream line the graduates to different emerging fields as per their choice.
OE	Courses of interdisciplinary nature offered to all the students of various programmes across the Institute.
PW	To make a perfect, Hands-on experienced Professionals.
MC	Compulsory non-credit courses that a student need to study to become a responsible citizen, as per supreme court guidelines.
AC	Audit courses can help the student to get awareness of different issues which enhance their skill sets to improve their employability.

Induction Program

SMC901AD Induction Program (Mandatory)	**3 weeks' duration**
Induction program for students to be offered right at the start of the first year	• Physical Activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent People • Visits to local Areas • Familiarization to Dept./Branch & Innovations

I Semester

S.No.	**Course Code**	**Course Title**	**Scheme of Instruction**				**Scheme of Examination**			**Credits**
			L	**T**	**P/D**	**Contact Hours per week**	**CIE**	**SEE**	**SEE Duration in Hours**	
Theory Courses										
Three Week Induction Program										
1	SHS901EG	English	2	-	-	2	40	60	3	2
2	SBS101MT	Mathematics – I	3	1	-	4	40	60	3	4
3	SBS902PH	Applied Physics	3	-	-	3	40	60	3	3
4	SES101CS	Programming for Problem Solving	3	-	-	3	40	60	3	3
5	SMC903PO	Indian Constitution	2	-	-	2	40	60	3	0
6	SMC904PY	Essence of Indian Traditional Knowledge	2	-	-	2	40	60	3	0
Practical/Laboratory Courses										
7	SHS911EG	English Lab	-	-	2	2	40	60	3	1
8	SBS912PH	Physics Lab			4	4	40	60	3	2
9	SES111CS	Programming for Problem Solving Lab	-	-	4	4	40	60	3	2
10	SES914ME	Workshop		-	6	6	40	60	3	3
TOTAL			**15**	**01**	**16**	**32**	**400**	**600**	**30**	**20**

II Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SBS201MT	Mathematics – II	3	1	-	4	40	60	3	4
2	SBS903CH	Chemistry	3	-	-	3	40	60	3	3
3	SES901EC	Basic Electrical & Electronics Circuits	3	-	-	3	40	60	3	3
4	SES202CS	Data Structures Using C	3	-	-	3	40	60	3	3
5	SMC903CE	Environmental Science	2	-	-	2	40	60	3	-
6	SAC901AD	Design Thinking	2	-	-	2	-	=	-	-
Practical/Laboratory Courses										
7	SBS913CH	Chemistry Lab	-	-	4	4	40	60	3	2
8	SES915ME	Engineering Graphics & Design	1	-	4	5	40	60	3	3
9	SES911EC	Basic Electrical & Electronics Circuits Lab	-	-	4	4	40	60	3	2
10	SES212CS	Data Structures Using C Lab	-	-	2	2	40	60	3	1
11	SPW211AD	Field Work	The students have to undergo a Field work of2-week duration after II- Semester SEE				50	-	-	1
TOTAL			**17**	**01**	**14**	**32**	**410**	**540**	**30**	**22**

III Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SBS301MT	Mathematics-III (Probability & Statistics)	3	-	-	3	40	60	3	3
2	SES301AD	Discrete Mathematics	3	1	-	3	40	60	3	4
3	SPC301AD	OPPs Using Java	3	-	-	3	40	60	3	3
4	SPC302AD	Data Base Management System	3	-	-	3	40	60	3	3
5	SPC303AD	Concepts in Computer Organization and Microprocessor	3	-	-	3	40	60	3	3
6	SAC902EE	Electrical Technology	2	-	-	2	-	-	-	-
Practical/Laboratory Courses										
7	SPC311AD	OPPs Using Java Lab	-	-	3	3	40	60	3	1.5
8	SPC312AD	Data Base Management System Lab	-	-	3	3	40	60	3	1.5
9	SPC313AD	Concepts in Computer Organization and Microprocessor Lab	-	-	2	2	40	60	3	1
TOTAL			**17**	**01**	**8**	**26**	**320**	**480**	**24**	**20**

IV Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SES401EC	Digital Electronics	3	-	-	3	40	60	3	3
2	SPC401AD	Artificial Intelligence and Robotics	3	-	-	3	40	60	3	3
3	SPC402AD	Operating System	3	-	-	3	40	60	3	3
4	SPC403AD	Data Communication and Computer Network	3	-	-	3	40	60	3	3
5	SPC404AD	Data Science	3	-	-	3	40	60	3	3
Practical/Laboratory Courses										
6	SHS411EG	Soft Skills & Interpersonal Skills	1	-	2	2	40	60	3	2
7	SPC412AD	Operating System & CN Lab	-	-	4	4	40	60	3	2
8	SPC413AD	Data Science using R	-	-	2	2	40	60	3	1
9	SPW411AD	Internship- 1	The students have to undergo an Internship of 4 week duration after IV- Semester SEE				50	-	-	1
TOTAL			**16**	**00**	**08**	**24**	**370**	**480**	**24**	**21**

V Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SPC501AD	Automata Theory and Compiler Design	3	-	-	3	40	60	3	3
2	SPC502AD	Natural Language Processing Using python	3	-	-	3	40	60	3	3
3	SPC503AD	Design Analysis & Algorithms	3	-	-	3	40	60	3	3
4	PE-I	Professional Elective – I	3	-	-	3	40	60	3	3
5	OE-1	Open Elective – I	3	-	-	3	40	60	3	3
Practical/Laboratory Courses										
6	SPC511AD	Automata Theory and Compiler Design Lab	-	-	3	3	40	60	3	1.5
7	SPC512AD	Natural Language Processing Using python Lab	-	-	3	3	40	60	3	1.5
8	SPC513AD	Design Analysis & Algorithms Lab	-	-	2	2	40	60	3	1
TOTAL			**15**	**00**	**10**	**25**	**320**	**480**	**24**	**19**

Professional Elective – I

SPE501AD Machine Vision

SPE502AD Mathematical Modeling for Data Science

SPE503AD Advanced Database

SPE504AD Distributed systems

SPE505AD Cryptography & Cyber Security

SPE506AD Introduction to IoT

VI Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SHS601BM	Managerial Economics & Financial Accounting	3	1	-	4	40	60	3	4
2	SPC601AD	Software Engineering	3	-	-	3	40	60	3	3
3	SPC602AD	Machine Learning Techniques	3	-	-	3	40	60	3	3
4	SPC603AD	Big Data Analytics and Hadoop	3	-	-	3	40	60	3	3
5	PE-II	Professional Elective – II	3	-	-	3	40	60	3	3
Practical/Laboratory Courses										
6	SPC611AD	Software Engineering Lab	-	-	4	4	40	60	3	2
7	SPC612AD	Machine Learning & Hadoop Lab	-	-	4	4	40	60	3	2
8	SPW614AD	Web Technology Lab	1	-	2	3	40	60	3	2
9	SPW611AD	Technical Seminar-1			2	2	50	-	-	1
10	SPW612AD	Internship- 2	The students have to undergo an Internship of 4 week duration after VI- Semester SEE				50	-	-	1
TOTAL			**16**	**01**	**12**	**29**	**420**	**480**	**24**	**24**

VII Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	SPC701AD	Neural Networks and Deep Learning	3	-	-	3	40	60	3	3
2	PE-IV	Professional Elective – IV	3	-	-	3	40	60	3	3
3	PE-V	Professional Elective – V	3	-	-	3	40	60	3	3
4	OE-I	Open Elective – I	3	-	-	3	40	60	3	3
5	OE-II	Open Elective – II	3	-	-	3	40	60	3	3
Practical/Laboratory Courses										
6	SPC711AD	Neural Network and Deep Learning Lab	-	-	2	2	40	60	3	1
7	PE-Lab	Professional Elective – Lab	-	-	2	2	40	60	3	1
8	SPW711AD	Project Work – I	-	-	6	6	50		3	3
	SPW712AD	Technical Seminar-1			2	2	50	-	-	1
TOTAL			**15**	**0**	**12**	**27**	**380**	**420**	**24**	**21**

VIII Semester

S.No.	Course Code	Course Title	Scheme of Instruction				Scheme of Examination			Credits
			L	T	P/D	Contact Hours per week	CIE	SEE	SEE Duration in Hours	
Theory Courses										
1	OE-III	Open Elective – IV (Online Course)	3	-	-	3	40	60	3	3
Practical/Laboratory Courses										
2	SPW811AD	Project II	-	-	16	16	40	120	-	8
TOTAL			**03**	**-**	**16**	**19**	**80**	**180**	**03**	**11**

Professional Elective – II

SPE507AD	information retrieval system
SPE508AD	Advanced Python Programming
SPE509AD	SQL & DB Applications
SPE50AAD	Cloud Computing
SPE50BAD	Cyber forensics
SPE50CAD	Embedded System

Professional Elective – III	
SPE601AD	Speech Processing
SPE602AD	NO SQL Databases
SPE603AD	Database Security & Privacy
SPE604AD	Security & Privacy in Cloud Computing
SPE605AD	Digital forensics
SPE606AD	Blockchain Technology

Professional Elective – IV	
SPE701AD	Cognitive Science and Analytics
SPE702AD	Business intelligence and Analytics
SPE703AD	Database Administration and Tuning
SPE704AD	Service Oriented Architecture
SPE705AD	Vulnerability Analysis and Penetration Testing
SPE706AD	Open Source Programming for IoT

Professional Elective – V	
SPE707AD	Robotics and Intelligent Systems
SPE708AD	Web and Social Media Analytics
SPE709AD	Large Scale Data Processing
SPE70AAD	Cloud Application Development
SPE70BAD	Malware Analysis
SPE70CAD	Artificial Intelligence in Blockchain

Open Elective – I		
Course Code	**Course Title**	**Course Offered by the Department**
SOE701EG	Effective Technical Communication in English	English
SOE701PY	Introduction to Nanoscience and Technology	Physics
SOE701EC	Signals ans Systems	ECE
SOE701EE	Non-Conventional Energy Sources	EEE
SOE701MT	Operations Research	Mathematics
SOE701CE	Disaster Mitigation	CE

Open Elective – II		
Course Code	**Course Title**	**Course Offered by the Department**
SOE702BM	Advanced Entrepreneurship	MBA
SOE702MT	Mathematical Modeling	Mathematics
SOE702EC	Embedded Systems and its Applications	ECE
SOE702EE	Renewable Energy Sources	EEE

Open Elective – III		
Course Code	**Course Title**	**Course Offered by the Department**
SOE801EC	Internet of Things	ECE
SOE801BM	Supply Chain Management	MBA
SOE702EG	Technical Writing for Research	English
SOE801CE	Industrial Safety	CE
SOE801EE	Industrial Instrumentation	EEE

List of open electives offered to other departments

Open Electives I, II, III, IV	
Course Code	**Course Title**
SOExxxAD	Python Programming
SOExxxAD	Data Science Using R
SOExxxAD	Artificial intelligence
SOExxxAD	Machine Learning
SOExxxAD	Soft computing and Neural Networks

Mandatory (non-credit) Courses

Course Code	Course Title
SMC901HS	Induction Program
SMC902CE	Environmental Science
SMC903PS	Indian Constitution
SMC904PY	Essence of Indian Traditional Knowledge

Audit (non-credit) Courses

Course Code	Course Title
SAC901AD	Design Thinking
SAC902EE	Electrical Technology