

## School of Computer Sciences and Engineering

Department of Computer Science & Application

### - NEP-2020 Course Structure- Level 4.5

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

**Semester – I**

**For the Batch: AY 23-24 onwards**

Sr. No.	Category	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory + Electives)												
1	Major	NYCI101	Problem Solving Technique using C	3	--	--	3	50	--	100	--	100
2	Major	NYMT101	Mathematical Foundation for Computer Science	2	1	--	3	50	--	100	--	100
Minor: NA												
NA												
Open Elective (OE) *												
3	OE		Open Elective – I	4	--	--	4	50	--	100	--	100
Vocational and Skill Enhancement (VSEC)												
4	SEC	NCAS01	Office 365 Laboratory	--	--	4	2	--	50	--	50	100
5	VSC	NYCI111	C Programming Laboratory	--	--	4	2	--	50	--	50	100
Ability/ Value Education Courses / Indian Knowledge System(AEC/VEC/IKS) *												
6	AEC		Ability Enhancement Courses – I	--	--	4	2	--	50	--	50	100
7	VEC		Value Education Course – I	--	--	4	2	--	50	--	50	100
8	IKS		Indian Knowledge System – I	--	--	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												
9	CC	NYUCI111	Yoga and Meditation	--	--	4	2	--	50	--	50	100
TOTAL				9	1	24	22	150	300	300	300	900

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
		Written Examination – End Semester Exam (ESE)		50%
	<b>TOTAL</b>	<b>100%</b>		

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

Department of Computer Science & Application

### - NEP-2020 Course Structure- Level 4.5

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

#### Semester – II

**For the Batch: AY 23-24 onwards**

Sr. No.	Category	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major(Mandatory + Electives)												
1	Major	NYCI201	Object Oriented Programming using C++	3	--	--	3	50	--	100	--	100
2	Major	NYCI202	Discrete Mathematics	3	--	--	3	50	--	100	--	100
Minor:												
3	Minor		Minor-I	2	--	--	2	50	--	100	--	100
Open Electives (OE) *												
4	OE		Open Elective – II	4	--	--	4	50	--	100	--	100
Vocational and Skill Enhancement (VSEC)												
5	VSC	NYCI211	Object Oriented Programming using C++ Laboratory	--	--	4	2	--	50	--	50	100
6	SEC	NCAS04	Web Application Development Technologies Laboratory	--	--	4	2	--	50	--	50	100
Ability/ Value Education Courses / Indian Knowledge System(AEC/VEC/IKS) *												
7	AEC		Ability Enhancement Courses - II	--	--	4	2	--	50	--	50	100
8	VEC		Value Education Course - II	--	--	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												
9	CC		Co-Curricular Course-I	--	--	4	2	--	50	--	50	100
TOTAL				12	--	20	22	200	300	400	300	1000

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
		Written Examination – End Semester Exam (ESE)		50%
	<b>TOTAL</b>	<b>100%</b>		

**Exit option:** Award of UG Certificate in Major with 40-44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor.

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

Department of Computer Science & Application

### - NEP-2020 Course Structure- Level 5.0

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

**Semester – III**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Category	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI301	Python Programming	4	--	--	4	50	--	100	--	100
2	Major	NYCI302	Database Management System	4	--	--	4	50	--	100	--	100
Minor												
3	Minor		Minor-II	4	--	--	4	50	--	100	--	100
Open Elective (OE) *												
4	OE		Open Elective – III	2	--	--	2	50	--	100	--	100
Vocational and Skill Enhancement (VSEC)												
5	VSC	NYCI311	Lab Course Based on Python Programming & Database Management System	--	--	4	2	--	50	--	50	100
Ability/ Value Education Courses / Indian Knowledge System (AEC/VEC/IKS) *												
6	AEC		Ability Enhancement Courses - III	--	--	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												
7	CC		Co-Curricular Course-II	--	--	4	2	--	50	--	50	100
8	FP	NYCI312	Field project	--	--	4	2	--	50	--	50	100
TOTAL				14	-	16	22	200	200	400	200	800

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC-</b> Ability Enhancement Courses <b>IKS-</b> Indian Knowledge System <b>VEC-</b> Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
		Written Examination – End Semester Exam (ESE)		50%
		<b>TOTAL</b>	<b>100%</b>	

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

**- NEP-2020 Course Structure-**

**Level 5.0**

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

**Semester – IV**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI401	Python For Data Science	4	-	-	4	50	-	100	-	100
2	Major	NYCI402	Relational Database Management System	4	-	-	4	50	-	100	-	100
Minor												
3	Minor		Minor III	4	-	-	4	50	-	100	-	100
Open Electives (OE)												
4	OE		Open Elective IV	2	-	-	2	50	-	100	-	100
Vocational and Skill Enhancement (VSEC)												
5	SEC	NYCI411	Lab Course based on Python & Relational Database Management System	-	-	4	2	--	50	--	50	100
Ability/Vocational Enhancement Courses / Indian Knowledge System (AEC/VEC/IKS)												
6	AEC		Ability Enhancement Course-IV	-	-	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												
7	CEP	NYCI412	Community Engagement Project	-	-	4	2	--	50	--	50	100
8	CC		Co-Curricular Course-III	-	-	4	2	--	50	--	50	100
TOTAL				14	-	16	22	200	200	400	200	800

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
Written Examination – End Semester Exam (ESE)			50%	
		<b>TOTAL</b>	<b>100%</b>	

**Exit option:** Award of UG Diploma in Major and Minor with 80-88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		



## School of Computer Sciences and Engineering

Department of Computer Science & Application

**- NEP-2020 Course Structure-  
Level 5.5**

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

**Semester – V**

**For the Batch: A.Y. 2023-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
MAJOR												
1	Major	NYCI501	Java Programming	4	--	--	4	50	--	100	--	100
2	Major	NYCI502	Augmented Reality and Introduction to Virtual Reality with unity	4	--	--	4	50	--	100	--	100
3	Major	NYCI503	R Programming	2	--	--	2	50	--	100	—	100
MINOR: NA												
3	Minor	NYCIM__	Minor IV	4	--	--	4	50	--	100	--	100
Major Electives (ME)												
4	ME		Major Elective I	4	--	--	4	50	--	100	--	100
Vocational and Skill Enhancement (VSEC)												
5	VSC		Lab Course based on Java and Augmented Reality and Introduction to Virtual Reality with unity	--	--	4	2	--	50	--	50	100
Ability/Vocational Enhancement Courses / Indian Knowledge System(AEC/VEC/IKS)												
6	AEC		Ability Enhancement Courses - V	--	--	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

7	FP		Field Project			4	2		50	--	50	100
			<b>TOTAL</b>	<b>18</b>	<b>-</b>	<b>12</b>	<b>24</b>	<b>250</b>	<b>150</b>	<b>500</b>	<b>150</b>	<b>800</b>

Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	OJT – On Job Training FP – Field Project CEP – Community Engagement Projects CC – Co-Curricular Course RP – Research Project * - Refer University Notification	CIA	Weightage	Description
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioural Attitude +General Discipline Theory +Practical attendance
		CIA TOTAL	50%	
		Written Examination – End Semester Exam (ESE)		50%
TOTAL		100%		

**List of Minor IV:**

Sr.No	Course Code	Course Name
1	<b>NYCIM04</b>	<b>Cloud Computing</b>
2	<b>NYCIM09</b>	<b>Artificial Neural Network</b>

**List of Major Electives (ME):**

Sr.No	Course Code	Course Name
1	<b>NYCIE01</b>	<b>Deep Learning</b>
2	<b>NYCIE02</b>	<b>Mobile Application Development</b>

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

Department of Computer Science & Application

### - NEP-2020 Course Structure- Level 5.5

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Hons. / Hons. with Research)

**Semester – VI**

**For the Batch: A.Y. 24-25 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major												
1	Major	NYCI601	Advanced Java	4	-	-	4	50	-	50	-	100
2	Major	NYCI601	Data Visualization Using Power BI	4	-	-	4	50	-	50	-	100
Minor												
3	Minor	NYCIM__	Minor V	4	-	-	4	50	-	50	-	100
Major Electives(ME)												
4	ME		Major Elective II	3			4	50	-	50	-	100
Vocational and Skill Enhancement (VSEC)												
5	VSC		Lab Course based on Advanced Java and Data Visualization	--	--	4	2	--	50	--	50	100
Ability/Vocational Enhancement Courses / Indian Knowledge System(AEC/VEC/IKS)												
6	AEC		Ability Enhancement Courses - VI	--	--	4	2	--	50	--	50	100
OJT/FP/CEP/CC/RP												
7	OJT		Internship I				4		50	--	50	100

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
 Department of Computer Science & Application

			<b>TOTAL</b>	<b>15</b>	<b>-</b>	<b>8</b>	<b>24</b>	<b>200</b>	<b>150</b>	<b>200</b>	<b>150</b>	<b>700</b>
--	--	--	--------------	-----------	----------	----------	-----------	------------	------------	------------	------------	------------

Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	OJT – On Job Training FP – Field Project CEP – Community Engagement Projects CC – Co-Curricular Course RP – Research Project * - Refer University Notification	CIA	Weightage	Description
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioural Attitude +General Discipline Theory +Practical attendance
		CIA TOTAL	50%	
		Written Examination – End Semester Exam (ESE)		50%
		TOTAL	100%	

**List of Minor V:**

Sr.No	Course Code	Course Name
1	NYCIM10	Knowledge Representation Using AI

**List of Major Electives (ME):**

Sr.No	Course Code	Course Name
1	NYCIE03	Natural Language Processing
2	NYCIE04	Computer Vision

**Exit option: Award of UG Degree in Major with 120-132 credits OR Continue with Major and Minor**

**- NEP-2020 Course Structure-  
Level 6.0**

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

Department of Computer Science & Application

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Honours)

**Semester – VII**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI701	Unsupervised Learning and Neural Network	4	-	-	4	50	-	100	-	100
2	Major	NYCI702	Statistics for Machine Learning	4	-	-	4	50	-	100	-	100
3	Major	NYCI703	Software Project Management	2	-	-	2	50	-	100	-	100
4	Major	NYCI704	Artificial Intelligence and Knowledge Presentation	4	-	-	4	50	-	100	-	100
Major Electives (ME)												
5	ME	NYCIE__	Major Elective III	4			4	50	-	100	-	100
Minor												
6	Minor		Minor VI	4		-	4	50		100		100
TOTAL				22	-	-	22	300	-	600	-	600

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

### Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	CIA	Weightage	Description
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
		Written Examination – End Semester Exam (ESE)		50%
	<b>TOTAL</b>	<b>100%</b>		

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

## School of Computer Sciences and Engineering

Department of Computer Science & Application

### - NEP-2020 Course Structure- Level 6.0

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Honours)

**Semester – VIII**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI801	Fuzzy Logic and Neural Networks	4	-	-	4	50	-	100	-	100
2	Major	NYCI802	Pattern Recognition	4	-	-	4	50	-	100	-	100
3	Major	NYCI803	Cyber Security Essentials	2	-	-	2	50	-	100	-	100
4	Major	NYCI804	Principles of Management	4	-	-	4	50	-	100	-	100
Major Electives (ME)												
5	ME	NYCIE__	Major Elective IV	4	-	-	4	50	-	100	-	100
OJT/FP/CEP/CC/RP												
6	OJT		Internship II	-	-	8	4	-	50	--	50	100
			TOTAL	18	-	8	22	250	50	500	50	600

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
Written Examination – End Semester Exam (ESE)			50%	
		<b>TOTAL</b>	<b>100%</b>	

Four Year B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality Honours in Major & Minor with 160-176 Credits

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		



**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

**- NEP-2020 Course Structure-  
Level 6.0**

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Honours with Research)

**Semester – VII**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI701	Statistics for Machine Learning	4	-	-	4	50	-	100	-	100
2	Major	NYCI702	Artificial Intelligence and Knowledge Presentation	4	-	-	4	50	-	100	-	100
3	Major	NYCI703	Software Project Management	2	-	-	2	50	-	100	-	100
Major Electives (ME)												
4	ME	NYCIE__	Major Elective III	4	-	-	4	50	-	100	-	100
Minor												
5	Minor		Minor VI	4	-	-	4	50		100		100
OJT/FP/CEP/CC/RP												
6	RP	NYCI711	Research Project-I	-	-	8	4	-	100	--	100	200
TOTAL				18	-	8	22	250	100	500	100	700

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
Written Examination – End Semester Exam (ESE)			50%	
		<b>TOTAL</b>	<b>100%</b>	

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
 Department of Computer Science & Application

**- NEP-2020 Course Structure-  
 Level 6.0**

**Programme Name:** B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality (Honours with Research)

**Semester – VIII**

**For the Batch: A.Y. 23-24 onwards**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
Major (Mandatory)												
1	Major	NYCI801	Fuzzy Logic and Neural Networks	4	-	-	4	50	-	100	-	100
2	Major	NYCI802	Pattern Recognition	4	-	-	4	50	-	100	-	100
3	Major	NYCI803	Cyber Security Essentials	2	-	-	2	50	-	100	-	100
Major Electives (ME)												
4	ME	NYCIE__	Major Elective IV	4	-	-	4	50	-	100	-	100
OJT/FP/CEP/CC/RP												
5	RP	NYCI811	Research Project-II	-	-	16	8	-	100	--	100	200
TOTAL				14	-	16	22	200	100	400	100	600

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

<b>CIA:</b> Continuous Internal Assessment <b>ESE:</b> End Semester Theory Exam. <b>L:</b> Theory Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical	<b>OJT</b> – On Job Training <b>FP</b> – Field Project <b>CEP</b> – Community Engagement Projects <b>CC</b> – Co-Curricular Course <b>RP</b> – Research Project <b>AEC</b> - Ability Enhancement Courses <b>IKS</b> - Indian Knowledge System <b>VEC</b> - Value Education Courses  * - Refer University Notification	<b>CIA</b>	<b>Weightage</b>	<b>Description</b>
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Activity /Project and Research Based Learning along with Seminar Presentations
		CIA 4	10%	Behavioral Attitude +General Discipline Theory +Practical attendance
		<b>CIA TOTAL</b>	<b>50%</b>	
Written Examination – End Semester Exam (ESE)			50%	
		<b>TOTAL</b>	<b>100%</b>	

Four Year B.Sc. Computer Science in Artificial Intelligence Machine Learning and Virtual Reality Honours with Research in Major & Minor with 160-176 Credits

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

**NEP 2020- Ability Enhancement Course (AEC) Basket (For the Batch 2025-26 Onwards)**  
**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NHSA01	Communicative English	I
2	NHSA05	Elementary Marathi	
3	<b>NHSA09</b>	<b>Linguaskills I</b>	
4	NHSA02	Personality Development and Soft Skill	II
5	NHSA04	Introduction to Sanskrit	
6	<b>NHSA10</b>	<b>Linguaskills 2</b>	
7	NCAA01	Leadership Skills and Team Management	III
8	NCAA02	Sustainable Development	
9	<b>NHSA11</b>	<b>Key Competencies for Career Growth</b>	
7	NCAA03	Creative Writing	IV
8	NCAA04	Reading Indian Fiction in English	
9	<b>NHSAI2</b>	<b>Strategic Communication for Professionals</b>	
10	<b>NHSA13</b>	<b>Essential Aptitude Skills</b>	V
11	<b>NHSA14</b>	<b>Employability Skills and Career Advancement</b>	VI

**NEP 2020 Value Education Course (VEC) Basket (For the Batch 2024-25 Onwards)**  
**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NSSV01	<b>Environmental Studies</b>	I
2	NCAV01	Human Values and Professional Ethics	
3	NLWV01	<b>Constitution and Human Rights</b>	II
4	NCAV02	Science and Society	

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

**NEP 2020 Indian Knowledge System (IKS) Basket (For the Batch 2024-25 Onwards)**  
**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NCAI01	<b>Indian Epics</b>	<b>I</b>
2	NCAI02	Ancient Indian History and Culture	
3	NCAI03	Vedic Literature	
4	NCAI04	Ancient Indian Mathematicians	

**NEP 2020- Co-Curricular Activity (CC) Basket (For the Batch 2024-25 Onwards)**  
**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NYUC111	<b>Yoga and Meditation</b>	<b>I</b>
2	NCAC01	Solid Waste Management	
3	NCAC02	<b>Health and Wellness</b>	<b>II</b>
4	NCAC03	Essence of Good Governance	
5	NCAC04	<b>e-Waste Management</b>	<b>III</b>
6	NCAC05	Knowing India's Heritage	
7	NCAC06	<b>Soil and Water Resource Conservation</b>	<b>IV</b>
8	NCAC07	Social Responsibilities and Ethics	

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
 Department of Computer Science & Application

**NEP 2020- Minor Basket (For the Batch 2024-25 Onwards)**  
**Program: BSc. CS AIML & VR**

Students from BSc. CS AIML&VR shall Opt. following Minor Courses in Concern semester

Sr. No.	Course Code	Name of the Course	Credits	Semester
1	NYCIM01	Web Application Development Technologies	2	II
2	NYCIM02	Data Structure Using C	4	III
3	NYCIM03	Theoretical computer science	4	IV
4	NYCIM04	Cloud Computing	4	V
5	NYCIM05	Software Testing	4	VI

**NEP 2020- Minor Basket (For the Batch 2024-25 Onwards)**  
**Program: BSc. CS AIML & VR**

Students from BSc. Computational Mathematics and Data Science with Minor in Artificial Intelligence (AI) shall Opt. following Minor Courses in Concern semester

Sr. No.	Course Code	Name of the Course	Credits	Semester
1	NYCIM06	Introduction to AI Fundamental	2	II
2	NYCIM07	Basics of Machine Learning	4	III
3	NYCIM08	Fundamentals of AI & ML	4	IV
4	NYCIM09	Artificial Neural Network	4	V
5	NYCIM10	Knowledge Representation using AI	4	VI

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

**NEP 2020- Open Elective Basket (For the Batch 2024-25 Onwards)**

**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NCAO01	Fundamental of Computers	I
2	NCAO02	IT Security	
3	NCAO03	Applications of Artificial Intelligence	
4	NCAO04	Computer Hardware	II
5	NCAO05	Introduction to IOT	
6	NCAO06	Digital Fluency	
7	NCAO07	Fundamentals of Artificial Intelligence and Machine Learning	III
8	NCAO08	Operating System	
9	NCAO09	Digital Electronics	IV
10	NCAO10	Big Data Analytics	

**NEP 2020- Major Elective Basket (For the Batch 2024-25 Onwards)**

**Program: BSc. CS AIML & VR**

Sr. No.	Course Code	Name of the Course	Semester
1	NYCIE01	Deep Learning	V
2	NYCIE02	Mobile Application Development	
3	NYCIE03	Natural Language Processing	VI
4	NYCIE04	Computer Vision	
5	NYCIE05	DevOps in Machine Learning	VII
6	NYCIE06	Artificial Intelligence in Business	
7	NYCIE07	Reinforcement Learning	VIII
8	NYCIE08	Data Visualization using Tensor flow	

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		





**Sandip University, Nashik (MS), India**  
At Post Mahiravani, Trimbak Road, Nashik-422213, Maharashtra  
<https://www.sandipuniversity.edu.in>

**School of Computer Sciences and Engineering**  
Department of Computer Science & Application

---

BoS  
Chairperson

Dean  
SOCSA

Associate Dean  
Academics

Registrar  
SUN

Document Reference	Revision No. / Date	Prepared By	Approved By
SUN/SOCSE/Application/BSc CS AIML&VR/ Sem- /2024-25	R / 5 <sup>th</sup> July 2024		