

**Vivekanand Education Society's College of Arts, Science & Commerce(Autonomous)**

**Subject : NEP Computer Science June 2023**

List of Major, Minor, Elective, IKS related to Major, Open Elective

**MAJOR COURSE**

<b>YEAR</b>	<b>Sem.</b>	<b>Theory / Practical</b>	<b>Course Title</b>	<b>No of Credits</b>	<b>No of Hours</b>	<b>Total Credits</b>
I	I	Theory	Computer Fundamentals	2	30	6
		Theory	Programming using Python	2	30	
		Practical	Computer Science Practical 1	2	60	
	II	Theory	Design and Analysis of Algorithms	2	30	6
		Theory	Database Management System	2	30	
		Practical	Computer Science Practical 2	2	60	
II	III	Theory	Object Oriented Programming Using Java	2	30	8
		Theory	Data Structures	2	30	
		Theory	Software Engineering	2	30	
		Practical	Computer Science Practical 3	2	60	
	IV	Theory	Advanced Application Development	2	30	8
		Theory	Computer Networks	2	30	
		Theory	Theory of Computation	2	30	
		Practical	Computer Science Practical 4	2	60	
III	V	Theory	Data Science	2	30	10
		Theory	Information and Network Security	2	30	
		Practical	Computer Science Practical 5.1	2	60	
		Theory	Information Retrieval	2	30	
		Practical	Web Services	2	60	
	VI	Theory	Artificial Intelligence	2	30	10
		Theory	Cloud Computing	2	30	
		Practical	Computer Science Practical 6.1	2	60	
		Theory	Cyber Security & Cyber Law	2	30	
		Practical	Ethical Hacking	2	60	

YEAR	Sem.	Theory / Practical	Course Title	No of Credits	No of Hours	Total Credits
IV	VII	Theory	Compiler Construction	2	30	12
		Theory	Distributed Computing	2	30	
		Theory	Advanced Algorithms	2	30	
		Theory	Deep Learning	2	30	
		Practical	Practical of Computer Science 7.1	2	60	
		Practical	Practical of Computer Science 7.2	2	60	
	VIII	Theory	Soft Computing	2	30	12
		Theory	Natural Language Processing	2	30	
		Theory	Geographical Information Systems	2	30	
		Theory	Robotics	2	30	
		Practical	Practical of Computer Science 8.1	2	60	
		Practical	Practical of Computer Science 8.2	2	60	

#### ELECTIVE COURSE

YEAR	Sem.	Theory / Practical	Course Title	No of Credits	No of Hours	Total Credits
III	V	Theory	NoSQL Or Advanced IoT	2	30	4
	V	Practical	Practical of NoSQL or Practical of Advanced IoT	2	60	
	VI	Theory	Business Intelligence or Blockchain	2	30	4
	VI	Practical	Practical on Business Intelligence or Practical on Blockchain	2	60	
IV	VII	Theory	Image Processing Or Geographics Information Systems	2	30	4
	VII	Practical	Practical of Image Processing Or Practical of Geographics Information Systems	2	60	
	VIII	Theory	Bioinformatics or Biometrics and Computational Biology	2	30	4
	VIII	Practical	Bioinformatics or Biometrics and Computational Biology	2	60	

**MINOR COURSE**

Year	Sem.	Theory / Practical	Course Title	No of Credits	No of Hours	Total Credits
I	II	Theory	Descriptive Statistics	2	30	2
II	III	Theory	Discrete Mathematics	2	30	4
		Tutorial	Discrete Mathematics Tutorial	2	30	
	IV	Theory	Calculus	2	30	4
		Tutorial	Calculus Tutorial	2	30	
III	V	Theory	Linear Algebra	2	30	4
		Practical	Linear Algebra Practical	2	60	
	VI	Theory	Operational Research	2	30	4
		Tutorial	Operational Research Practical	2	60	

**OPEN ELECTIVE COURSES(offered by Computer Science Department)**

Year	Sem.	Theory/ Practical	Course Title	No of Credits	No of Hours	Total Credits
I	I/II	Theory	Quantitative Aptitude Development	2	30	2
II	III	Theory	Security in Digital World	2	30	2
		Theory	Orange Data Processing Tool	2	30	2
	IV	Theory	Introduction to SQL	2	30	2
		Theory	Data Analytics and Visualization	2	30	2

**Vocational Skill Courses (VSC)**

Year	Sem.	Theory/ Practical	Course Title	No of Credits	No of Hours	Total Credits
I	I	Practical	Web Designing	2	30	2
	II	Practical	Application Designing using Python	2	30	2
II	III	Practical	Advanced Database	2	30	2
III	V	Practical	Mobile Application Development	4	60	4

### Skill Enhancement Courses (SEC)

Year	Sem.	Theory/Practical	Course Title	No of Credits	No of Hours	Total Credits
I	I	Theory	Website Design Using Content Management System	2	30	2
	II	Theory	Introduction to R	2	30	2
II	IV	Theory	Software Testing Using Selenium	2	30	2
	IV	Theory	Game Programming	2	30	2

### Ability Enhancement Courses

Year	Sem.	Theory / Practical	Course Title	No of Credits	No of Hours	Total Credits
I	I	Theory	AEC : Business Communication 1	2	30	2
	I	Theory	VEC : Indian Constitution	2	30	2
	I	Theory	IKS : Vedic Mathematics	2	30	2
	II	Theory	AEC : Business Communication 2	2	30	2
	II	Theory	VEC : Environment Studies	2	30	2
II	III	Theory	AEC : Modern Indian Language	2	30	2
	IV	Theory	AEC : Modern Indian Language	2	30	2

### Co-Curricular Courses

Year	Sem.	Theory / Practical	Course Title	No of Credits	No of Hours	Total Credits
I	I	Activity Based	CC : NSS / Health, Wellness & Sports / Music / Cultural Activities, Department Activities etc	2	60	4
	II	Activity Based	CC : NSS / Health, Wellness & Sports / Music / Cultural Activities, Department Activities etc	2	60	