



SHARDA
UNIVERSITY
Beyond Boundaries



**SHARDA SCHOOL OF
ENGINEERING &
TECHNOLOGY**



COURSE

Queuing Theory for Engineers

(VAT108)

VALUE ADDED
COURSE BROCHURE-30 HRS
2024-25

ABOUT THE UNIVERSITY

Sharda University is a leading Educational institution based out of Greater Noida, Delhi NCR. A venture of the renowned Sharda Group of Institutions (SGI), The University has established itself as a high quality education provider with prime focus on holistic learning and imbining competitive abilities in students.

ABOUT SCHOOL

Sharda School of Engineering and technology is an open platform for diverse voices where teaching runs parallel to the real world and students are groomed to join the global workforce. SSET is distinguished as one of the top-ranked engineering schools in India. The students at SSET benefit through the professional grooming of renowned faculty and industry experts having experience of tackling pressing engineering problems. Students discover their passion in one of the various offered Engineering majors at the School of Engineering and technology.

ABOUT DEPARTMENT

The Department of Computer Science and Applications strives to equip faculty and students with all the computing resources needed to address a wide range of scientific, technological, and socially complex problems. The department imparts technical education for designing quirky technological applications and innovations. The department grails to become a center of excellence and impart knowledge to intellectual professionals so as to equip them with the requisite skills as per Industry standards. The department aims to foster an innovative research environment by providing a supportive, amiable, and challenge-based learning culture. The department utilizes high-performance computing equipment and facilities to impart state-of-the-art technical knowledge to students and instill a desire to pursue lifelong learning. To emerge as a world-class department, we focus on innovative research and quality learning in computer science applications that prepares entrepreneurs and professionals to lead the social, economic, and technical development of society. The department enjoys the full patronage of the Chancellor, Vice-Chancellor, Pro-Vice-Chancellor, and the director of the School of Engineering (SET) where it is housed presently.

VALUE ADDED COURSE (VAC)

The Value added Education Courses aim to provide additional learner centric graded skill oriented training, with the primary objective of improving the employability skills of students.

PURPOSE OF VALUE ADDED COURSE

VACs are pertinent instructional strategies designed to close knowledge gaps in students and provide them a competitive edge in the Job market. The courses' well-defined offspring VACs make them incredibly helpful for enhancing students' employability quotient by developing a variety of competencies. It aids students' in laying the creative groundwork for a passion project.(computers project, quantitative analytics,etc) aside from their occupation courses offering characteristics that can assist in transforming their enthusiasm into occupation. The course will cover the fundamentals of problem visualization from the standpoint of queue management in scenarios related to industrial or facility management. Course will provide basic approach of visualization of problem from Game theory perspective from industrial or facility management scenario.

COURSE SCHEDULE

Unit	Content	Duration
1	Introduction to queues	2 h
2	Input Process	2 h
3	Service Process	2 h
4	Transient State and queue parameters	2 h
5	Single server queue with infinite capacity	2 h
6	Steady state parameters evaluation	2 h
7	Finite capacity model	2 h
8	Issues with finite capacity	2 h
9	Steady state parameters evaluation finite state	2 h
10	General queues	2 h
11	Optimized queues	2 h
12	Optimum solutions methods of Assignment problem	2 h
13	Usage of queues applications	2 h
14	Applications under queuing theory domains	2 h
15	Writing of simple applications in Quantitative technique domain	2 h
Total		30 h

Data Analytics Using AWS Course Coverage (Total Hours: 30)

School: SSET		Batch : 2021-25	
Program: B.Tech IT		Current Academic Year: 2024-25	
Branch:		Semester: V	
1. Course Code	VAT108		
2. Course Title	Queuing Theory for Engineers		
3. Credits	0		
4. Contact Hours (L-T-P)	30 Hours		
Course Type	Value added course		
5. Course Objective	Course will provide basic approach of visualization of problem from queue management perspective from industrial or facility management scenario.		
6. Course Outcomes	CO1: Understanding basics of theory of Queues CO2: Understanding states of queue CO3: Understanding infinite capacity single server queue CO4: Understanding finite capacity single server queue model CO5: Software applications usage in practical industrial aspect CO6: Creating simple applications for quantitative solutions		
7. Course Description	This course will cover an overview of quantitative solutions to problems		
8. Outline syllabus		CO Mapping	
Unit 1	Introduction to queues and single server queue models		
A	Introduction to queues	CO1	
B	Input Process	CO1, CO2	
C	Service Process	CO1, CO2, CO3	
Unit 2	Single server Model infinite capacity		
A	Transient State and queue parameters	CO1, CO2	
B	Single server queue with infinite capacity	CO1, CO2	
C	Steady state parameters evaluation	CO1, CO2	
Unit 3	Single server finite capacity		
A	Finite capacity model	CO1, CO3	
B	Issues with finite capacity	CO1, CO3	
C	Steady state parameters evaluation finite state	CO1, CO3	
Unit 4	General Queues		
A	General queues	CO1, CO4	
B	Optimized queues	CO1, CO4	
C	Optimum solutions methods of Assignment problem	CO1, CO4	
Unit 5	Software applications		
A	Usage of queues applications	CO1, CO5 CO6	
B	Applications under queuing theory domains	CO1, CO5 CO6	
C	Writing of simple applications in Quantitative technique domain	CO1, CO5 CO6	
Mode of examination	Jury/Practical/Viva		

References

1. K.Sharma, Operations Research – Theory and Applications, MacMillan India, 2009.
2. D.Sharma, Operations Research – Theory, Methods and Applications, Kedarnath Ramnath, 15 th Edition.
3. Hillier, Frederick & Lieberman, Introduction to Operations Research Concepts and Cases, 8 th Edition, TMH, 2008