

**SAGE UNIVERSITY
SAGAR INSTITUTE OF RESEARCH &
TECHNOLOGY**

**COURSE STRUCTURE
OF**

B.Tech. CSE (With specialization in Virtual Reality and Game development)

BATCH 2018–22



Proposed By

Where Success is a Tradition

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Objective

- To prepare students for successful careers in software industry that meet the needs of Indian and multinational companies.
- To develop the skills among students to analyze real world problem & implement with computer engineering solution and in multidisciplinary projects.
- To provide students with solid foundation in mathematical, scientific and engineering fundamentals to solve engineering problems and required to pursue higher studies.
- To develop the ability to work with the core competence of computer science & engineering i.e. software engineering, hardware structure & networking concepts so that one can find feasible solution to real world problems.
- To inculcate in student's professional and ethical attitude, effective communication skills, team work skills, multidisciplinary approach, and an ability to relate engineering issues to broader social context.
- To motivate students perseverance for lifelong learning and to introduce them to professional ethics and codes of professional practice.

Program Outcomes

- Apply knowledge of mathematics, science and algorithm in solving complex Computer engineering problems.
- Generate solutions by conducting experiments and applying techniques to analyze and interpret data
- Design component, or processes to meet the needs within realistic constraints.
- Identify, formulate, and solve Software Engineering, Networking and Data Mining problems.
- Comprehend professional and ethical responsibility in computing profession.
- Express effective communication skills.
- Participate in global, economic, environmental, and societal context.
- Recognize the need for, and an ability to engage in life-long learning.
- Knowledge of contemporary issues and emerging developments in computing profession.
- Utilize the techniques, skills and modern computer Engineering tools, Software and techniques necessary for Engineering practice.
- Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
- Design research problems and conduct research in computing environment.

Career Opportunities

Job type	Current Average salary
Animations	Around \$50,000 (approximately 35 lakhs) per year
Audio Engineer	Around \$30,000 (approximately 18 lakhs) per year
Game Designer	Anywhere between \$45,000 to \$120,000 (approximately 27 lakhs to 72 lakhs) per year
Game Programmer	Approximately \$72,000 (approximately 43 lakhs), and those with experience can command \$95,000 (approximately 57 lakhs) per year .
Game director	Between around \$54,000 to \$81,000 per year.
Game Artist	The average salary around \$79,000
Game Marketer	around \$56,000,

About Program

This four-year degree program prepares students for careers in the expanding and evolving fields of mobile web and application development. Students learn the design of user interfaces, user experience and usability of mobile solutions. They engage in cross-platform, mobile web and native application development.

Students effectively design mobile website interfaces that work across multiple platforms and devices. Students also learn to build native applications for mobile devices, such as smartphones and tablets. Emphasis is placed on a hands-on approach to developing sites and applications. Real-world applications and solutions are created with a variety of technologies and programming languages. Diverse topics, such as user experience design, web security, online mobile marketing, user interface design and native smartphone application development with the latest standard web technologies are examined.

The rapid proliferation of mobile devices combined with the demand for continuous information access by consumers is creating exciting employment opportunities. Graduates may find employment in all levels of government, including healthcare and education, as well as business, marketing and communications.

This program is well-suited for students who:

- Are interested in working with computers and mobile devices, such as smart phones and tablets.
- Enjoy the challenge of working with evolving mobile technology.
- Have good problem-solving skills and enjoy solving logic problems.
- Enjoy non-repetitive tasks and the challenge of developing new and creative solutions for mobile applications.
- Can work independently and as a productive member of a team.
- Are organized in their work and pay attention to detail.
- Are committed and dedicated.

Eligibility

Minimum 60% marks in X Std & aggregate 60% marks in XII Std and minimum 60% in Physics Chemistry Maths English/Physics Maths Bio English/Physics Maths English Computer.

Admission Procedure

- Admissions to the BTech Programmeme would be made on the basis of Joint Entrance Examination JEE -2018.
- Direct admission for XII Std Board Toppers.
- Merit Based Counseling will be held on the basis of JEE (Mains) 2018; All India Rank (AIR) followed by 12th Std percentage in PCME / PMBE / PME Comp.
- Direct Admission to NRI / Industry Sponsored candidates.

Curriculum Structure for B.Tech. CSE (With specialization in Virtual Reality and Game development)

Batch: 2018-22

Year: 1st

Semester: I

Course Code	Course Title	L	T	P	Credits
EBSMAT03T	Engineering Mathematics- I	3	1	--	4
EBCOS01T	Communication Skills	3	0	-	3
EBSPHY01T	Physics	3	0	-	3
ECSFCI01T	Fundamentals of Computer and IT	2	0	-	2
EMEENG01T	Engineering Graphics	1	0	-	1
EECBEX02T	Basic Electrical and Instrumentation	2	1	-	3
EBSPHY01P	Physics LAB	-	-	-	1
ECSFCI01P	Fundamentals of Computer and IT LAB	-	-	2	1
EMEENG01P	Engineering Graphics LAB	-	-	2	2
EECBEX02P	Basic Electrical and Instrumentation LAB	-	-	4	1
	Massive on line open courses(MOOC)	-	-	2	3
				Total Credits	21

Year: 1st

Semester: II

Course Code	Course Title	L	T	P	Credits
EBSMAT04T	Engineering Mathematics- II	3	1	-	4
ECSFOP01T	Fundamentals of Computer Programming	2	1	-	3
ECSCSO01T	Computer System Organization	2	1	-	3
ECSEMC01T	E media and cyber security	1	0	-	1
EECBEC01T	Basic Electronics	2	0	-	2
EBCOS01P	Communication Skills LAB	-	-	2	1

MEWSP01P	Workshop Practice LAB	--	-	4	2
ECSFOP01P	Fundamentals of Computer Programming LAB	-	-	4	2
EECBEC01P	Basic Electronics LAB	-	-	2	1
ECSEMC01P	E media and cyber security LAB	-	-	2	1
ECSCSO01P	Computer System Organization LAB	-	-	2	1
	Massive on line open courses(MOOC)	-	-		3
				Total Credits	21

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Batch: 2018-22

Year: 2nd

Semester: III

Course Code	Course Title	L	T	P	Credit
ECSDBM01T	Database Management Systems	2	1	-	3
EBSTP01T	Statistics and Probability	3	1	-	4
ECSDSA01T	Data structures and algorithms	2	1	-	3
ECSCNT01T	Computer Networks	2	1	--	3
ECSOST01T	Operating Systems	2	1	-	3
EBSTCO01T	Technical Communication	1	1	-	2
ECSDBM01P	Database Management Systems LAB	-	--	2	1
ECSDSA01P	Data structures and algorithms LAB	-	-	2	1
ECSOST01P	Operating Systems LAB	-	-	2	1
	Massive on line open courses(MOOC)	-	-		3
				Total Credits	21

Year: 2nd

Semester: IV

Course Code	Course Title	L	T	P	Credit
ECSJPR01T	Java Programming	2	1	-	3
ECSEEN01T	Software Engineering	2	1	-	3
ECSCGM01T	Computer Graphics and Multimedia	2	1	-	3
ECSTOC01T	Theory of Computation	2	1	-	3
EECMPI01T	Microprocessor and Interfacing	1	1	-	2
ECSJPR01P	Java Programming LAB	-	-	4	2
ECSCGM01P	Computer Graphics and Multimedia LAB	-	-	2	1
EECMPI01P	Microprocessor and Interfacing LAB	-	-	2	1
ECSMIP01N	Minor Project-I	-	-		2
ECSVAP01N	The courses will be offered time to time as per need (60 hours)	-	-		2
	Massive on line open courses(MOOC)	-	-		3
Total Credits					20



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Batch: 2018-22

Year: 3rd

Semester: V

Course Code	Course Title	L	T	P	Credit
ECSDAA01T	Design and analysis of algorithms	2	1	-	3
CSMAA01T	Principles of Virtualization	3	1	-	4
ECSDMW01T	Data mining and Warehousing	2	1	-	3
MGMGM15T	Entrepreneurship	1	1	-	2
CSCGP01T/ CSAPD01T	Elective 1	3	1	-	4
ECSLUA01P	Linux Unix administration LAB	-	-	4	2
ECSDAA01P	Design and analysis of algorithms LAB	-	-	2	1
CSAJP01P	Principles of Virtualization LAB	-	-	2	1
ECSDMW01P	Data mining and Warehousing LAB	-	-	2	1
CSCGP01P/ CSAPD01P	Elective 1 LAB	-	-	2	1
ECSMIP06N M	Minor Project-II	-	-	-	4
ECSVAP03N	Value added program	The credits earned in summer through VAC			2
	Massive on line open courses(MOOC)	-	-	-	3
Total Credits					28

Year: 3rd

Semester: VI

Course Code	Course Title	L	T	P	Credit
ECSCCT01T	Cloud computing	2	1	-	3
ECSDOS01T	Distributed Operating Systems	2	1	-	3
ECSAIT01T	Artificial Intelligence	2	1	-	3
CSCDS01T	GPU Computing	2	1	-	3
CSAGP01T/ CSMTT01T	Elective 2	3	1	-	4
ECSCCT01P	Cloud computing LAB	-	-	2	1
ECSDOS01P	Distributed Operating Systems LAB	-	-	2	1
ECSAIT01P	Artificial Intelligence LAB	-	-	2	1
CSCDS01P	GPU Computing LAB	-	-	2	1
CSAGP01/P CSMTT01/P	Elective 2 LAB	-	-	4	2
ECSSMP03N	Summer Project/Industrial Project (150 hours)	-	-	-	5
	Massive on line open courses(MOOC)	-	-	-	3

		Total Credits	22
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List of Elective Subjects for VI Semester

Subject	Code	Subject	Code
Advanced game programming	CSAGP01T/P	Multimedia tools and technologies	CSMTT01T/P



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Batch: 2018-22

Year: 4th

Semester: VII

Course Code	Course Title	L	T	P	Credit
ECSSTQ01T	Software testing and quality assurance	2	1	-	3
CSCTG01T	3D Complexity Techniques for Graphics	3	1		4
CSACI01T	Advanced Cloud Infrastructure	3	1		4
CSGAS01T/ CSPSS01T	Elective 3	3	1	-	4
ECSSTQ01P	Software testing and quality assurance LAB	-	-	2	1
CSCTG01P	3D Complexity Techniques for Graphics LAB			2	1
CSACI01P	Advanced Cloud Infrastructure LAB			2	1
CSGAS01P/ CSPSS01P	Elective 3 LAB	-	-	2	1
ECSSMAP07N	Major Project Phase I	-	-	-	8
ECSSMP03N	Summer Project	The credits earned in previous summer break through Project			5
	Massive on line open courses(MOOC)	-	-	-	3
Total Credits					32

List of Elective Subjects for VII Semester

Subject	Code	Subject	Code
Gaming & Simulation (Concepts, Methodology, Tools & Application)	CSGAS01T/P	Privacy and Security in Social media world	CSPSS01T/P

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Semester: VIII

Course Code	Course Title	L	T	P	Credit
ECSMAP0 8N	Major project phase II/Internship (6 months)	-	-		15
ECSMAP0 9N	Major project phase II	-	-		12
ECSRMT01 T/MGENTO 5T	Research Methodology / Entrepreneurship-II	2	1		3
Total Credits					15

Summary of the Credits

Year	Semester	Credit	Year Credit
First Year	I	21	43
	II	22	
Second Year	III	21	41
	IV	20	
Third Year	V	28	50
	VI	22	
Fourth Year	VII	32	47
	VIII	15	
Total		181	181