

BE (COMPUTER ENGINEERING) -2019 Scheme

SEMESTER-I

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCB008	APPLIED CHEMISTRY	3	1	2	4.5
2	UTA017	COMPUTER PROGRAMMING	3	0	2	4.0
3	UES013	ELECTRICAL ENGINEERING	3	1	2	4.5
4	UEN002	ENERGY AND ENVIRONMENT	3	0	0	3.0
5	UMA003	MATHEMATICS – I	3	1	0	3.5
6	UES009	MECHANICS	2	1	0	2.5
		TOTAL	17	4	6	22.0
		TOTAL CONTACT HOURS				27.0

No EST

1		ELC ACTIVITY (ROBOTIC ARM8 SELF-EFFORT HOURS)	--	--	--	1
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SEMESTER-II

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UPH004	APPLIED PHYSICS	3	1	2	4.5
2	UTA018	OBJECT ORIENTED PROGRAMMING	3	0	2	4.0
3	UEC001	ELECTRONICS ENGINEERING	3	1	2	4.5
4	UTA015	ENGINEERING DRAWING	2	0	4	4.0
5	UHU003	PROFESSIONAL COMMUNICATION	2	0	2	3.0
6	UMA004	MATHEMATICS – II	3	1	0	3.5
		TOTAL	16	3	12	23.5
		TOTAL CONTACT HOURS				31.0

No EST

1		ELC ACTIVITY (MOBILE APP FOR INSTITUTE SERVICES 8 SELF-EFFORT HOURS)	--	--	--	1
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SEMESTER-III

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS303	OPERATING SYSTEMS	3	0	2	4.0
2	UCS405	DISCRETE MATHEMATICAL STRUCTURES	3	1	0	3.5
3	UCS520	COMPUTER NETWORKS	2	0	2	3.0
4	UES012	ENGINEERING MATERIALS	3	0	2	4.0
5	UMA007	NUMERICAL ANALYSIS	3	0	2	4.0
6		GENERIC ELECTIVE-I	2	0	0	2.0
		TOTAL	16	1	8	20.5
		TOTAL CONTACT HOURS				25.0

No EST

1	UTA013	ENGINEERING DESIGN PROJECT – I	-	-	-	4.0 ⁺⁺
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2		ELC ACTIVITY (UNITY GAME DESIGN GAMING & ANIMATION 8 SELF-EFFORT HOURS)	--	--	--	1
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SEMESTER-IV

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UTA002	MANUFACTURING PROCESSES	2	0	2	3.0
2	UMA031	OPTIMIZATION TECHNIQUES	3	1	0	3.5
3	UCS409	PROBABILITY AND STATISTICS	3	0	2	4.0
4	UES034	MEASUREMENT SCIENCE AND TECHNIQUES	3	0	2	4.0
5	UCS310	DATABASE MANAGEMENT SYSTEMS	3	0	2	4.0
6	UCS406	DATA STRUCTURES	3	0	2	4.0
		TOTAL	17	1	10	22.5
		TOTAL CONTACT HOURS				28.0

No EST

1	UTA014	ENGINEERING DESIGN PROJECT – II	-	-	-	4.0 ⁺⁺
2		ELC ACTIVITY (HANDWRITING RECOGNITION 8 SELF-EFFORT HOURS)	--	--	--	1

SEMESTER-V

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS503	SOFTWARE ENGINEERING	2	0	2	3.0
2	UCS507	COMPUTER ARCHITECTURE AND ORGANIZATION	2	1	0	2.5
3	UCS521	ARTIFICIAL INTELLIGENCE	2	0	2	3.0
4	UCS616	ANALYSIS AND DESIGNING OF ALGORITHMS	3	0	2	4.0
5	UCS701	THEORY OF COMPUTATION	3	1	0	3.5
6		ELECTIVE-I	2	0	2	3.0
		TOTAL	14	2	8	19.0
		TOTAL CONTACT HOURS				24.0

No EST

1	UCS407	INVENTIONS & INNOVATIONS IN COMPUTING	1	0	0	1.0
2	UCS525	PROFESSIONAL PRACTICES [#]	1	0	0	1.0
3		ELC ACTIVITY (CYBER SECURITY, INTERNET SECURITY 8 SELF-EFFORT HOURS)	--	--	--	1

The Course would consist of talks by working professionals from Industry, Government, Academia and Research organisation.

SEMESTER-VI

S. N.	COURSE NO.	TITLE	L	T	P	CR
1		NETWORK PROGRAMMING	2	0	2	3.0
2		COMPUTER GRAPHICS	3	0	2	4.0
3	UCS617	MICROPROCESSOR-BASED SYSTEMS	2	1	2	3.5

		DESIGN				
4		ELECTIVE-II	2	0	2	3.0
5		ELECTIVE-III	2	0	2	3.0
6		GENERIC ELECTIVE-II	2	0	0	2.0
		TOTAL	13	1	10	18.5
		TOTAL CONTACT HOURS				24.0

No EST

1	UTA012	INNOVATION AND ENTREPRENEURSHIP (2 SELF-EFFORTS HOURS)	1	0	2	4.0
2	UCS794	CAPSTONE PROJECT* – STARTS	0	0	2	-
3		ELC ACTIVITY (SMART CITY SMART CAR PARKING SYSTEM 8 SELF-EFFORT HOURS)	--	--	--	1

SEMESTER-VII

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS614	EMBEDDED SYSTEMS DESIGN	2	0	2	3.0
2	UCS802	COMPILER CONSTRUCTION	3	0	2	4.0
3	UHU005	HUMANITIES FOR ENGINEERS	2	0	2	3.0
4		ELECTIVE-IV	2	0	2	3.0
		TOTAL	9	0	8	13.0
		TOTAL CONTACT HOURS				17.0

No EST

1	UCS794	CAPSTONE PROJECT	0	0	2	8.0
2	UCS781	INDEPENDENT STUDY	1	0	0	1.0

SEMESTER-VIII

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS895	PROJECT SEMESTER*	-	-	-	15.0
		TOTAL	-	-	-	15.0

*To be carried out in Industry/Research Institution.

OR

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS801	IT PROJECT MANAGEMENT	3	0	0	3.0
2	UCS806	ETHICAL HACKING	3	0	2	4.0
		TOTAL	6	0	2	7.0
		TOTAL CONTACT HOURS				8.0

No EST

1	UCS896	CAPSTONE PROJECT II	0	0	4	8.0
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OR

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS897	START- UP SEMESTER**	-	-	-	15.0
		TOTAL	-	-	-	15.0

** Based on Hands on Work on Innovations and Entrepreneurship

LIST OF PROFESSIONAL ELECTIVES

ELECTIVE I

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS608	PARALLEL & DISTRIBUTED COMPUTING	2	0	2	3.0
2.	UCS522	COMPUTER VISION	2	0	2	3.0
3.	UML501	MACHINE LEARNING	2	0	2	3.0
4.	UCS523	COMPUTER & NETWORK SECURITY	2	0	2	3.0
5.	UCS524	ENGINEERING SOFTWARE AS A SERVICE	2	0	2	3.0
6.	UCS526	MATHEMATIC MODELING AND SIMULATION	2	0	2	3.0

ELECTIVE II

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS631	GPU COMPUTING	2	0	2	3.0
2.	UCS632	3D MODELLING AND ANIMATION	2	0	2	3.0
3.	UCS633	DATA ANALYTICS & VISUALIZATION	2	0	2	3.0
4.	UCS634	SECURE CODING	2	0	2	3.0
5.	USE401	SOFTWARE METRICS AND QUALITY MANAGEMENT	2	0	2	3.0
6.	UCS618	MATRIX COMPUTATION	2	0	2	3.0

ELECTIVE III

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS641	CLOUD COMPUTING	2	0	2	3.0
2.	UCS642	AUGMENTED AND VIRTUAL REALITY	2	0	2	3.0
3.	UML602	NATURAL LANGUAGE PROCESSING	2	0	2	3.0
4.	UCS643	CYBER FORENSICS	2	0	2	3.0
5.	UCS644	SOFTWARE VERIFICATION AND VALIDATION	2	0	2	3.0
6.	UCS619	FINANCIAL MATHEMATICS	2	0	2	3.0

ELECTIVE IV

S. N.	COURSE NO.	TITLE	L	T	P	CR
1	UCS741	SIMULATION & MODELLING	2	0	2	3.0
2.	UCG731	GAME DESIGN & DEVELOPMENT	2	0	2	3.0
3.	UCS742	DEEP LEARNING	2	0	2	3.0
4.	UCS743	ADVANCED COMPUTER NETWORKS	2	0	2	3.0
5.	UCS709	ADVANCED TOPICS IN SOFTWARE ENGINEERING	2	0	2	3.0
6.	UCS712	COMPUTATIONAL NUMBER THEORY	2	0	2	3.0

GENERIC ELECTIVE-I

S.N.	COURSE NO.	TITLE	L	T	P	CR
1	UHU007	EMPLOYABILITY DEVELOPMENT SKILL	2	0	0	2.0
2	UHU006	INTRODUCTORY COURSE IN FRENCH/GERMAN/SPANISH	2	0	0	2.0
3	UHU009	INTRODUCTION TO COGNITIVE SCIENCE	2	0	0	2.0
4	UHU008	INTRODUCTION TO CORPORATE FINANCE	2	0	0	2.0
5	UEN004	TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT	2	0	0	2.0
6	UBT509	BIOLOGY FOR ENGINEERS	2	0	0	2.0
7		ASTRONOMY AND ASTROPHYSICS	2	0	0	2.0
8		INTELLECTUAL PROPERTY RIGHTS	2	0	0	2.0
9		TOTAL QUALITY MANAGEMENT	2	0	0	2.0
10		INTRODUCTION TO INDIAN CONSTITUTION	2	0	0	2.0
11		ECONOMICS FOR DECISION MAKING	2	0	0	2.0

GENERIC ELECTIVE-II

S.N.	COURSE NO.	TITLE	L	T	P	CR
1		FINE ARTS	1	0	2	2.0
2		FASHION DESIGN	1	0	2	2.0
3		MASS COMMUNICATION	1	0	2	2.0
4		YOGA AND SCIENCE	1	0	2	2.0
5		THEATER/ DRAMA	1	0	2	2.0
6		CULINARY ARTS	1	0	2	2.0
7		PHOTOGRAPHY AND FILM MAKING	1	0	2	2.0
8		SOUND DESIGNING	1	0	2	2.0

SEMESTER WISE CREDITS FOR BE: COMPUTER ENGINEERING

Nature of Course	Credits to be Earned(As per Choice Based Credit System)								Total
	Semesters								
	I	II	III	IV	V	VI	VII	VIII	
Core-Foundation Courses	22	23.5	8	10.5	0	4	3	0	71.0
Core-Professional Courses	0	0	10.5	12	18.0	10.5	8	0	59.0
Professional & Generic Electives	0	0	2	0	3	8	3	0	16
Project Based Courses	1	1	5	5	1	1	8	15	37
Total									183.0

Nature of Course	Colour Scheme
Core-Foundation Courses	
Core-Professional Courses	
Generic Electives	
Professional Electives	
Project Based Courses	

Elective Focus

B.E. Computer Engineering Program is designed to offer elective focus as soon as student clears semester IV of the program. Student has to choose EF (Elective Focus) out of the following six choices and shall continue with this group till his study at Thapar Institute of Engineering & Technology. Choices are:

- I. High Performance Computing
- II. Computer Animation and Gaming
- III. Data Analytics and Machine Learning
- IV. Information and Cyber Security
- V. Software Engineering
- VI. Math and Computing