



**JAGADGURURAMBHADRACHARYA**  
UNIVERSITY NCR, HARYANA

## **FACULTY OF COMPUTER SCIENCE & ENGINEERING**

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## 4 year Curriculum structure

### Undergraduate Degree in Engineering & Technology Branch / course : Computer Science and Engineering

**Total credits (4 year course): 175**

#### I. Induction Program (Please refer Appendix-A for guidelines)

Induction program (mandatory)	3 weeks duration (Please refer Appendix-A for guidelines & also details available in the curriculum of Mandatory courses)
Induction program for students to be offered right at the start of the first year.	Physical activity Creative Arts Universal Human Values Literary Proficiency Modules Lectures by Eminent People Visits to local Areas Familiarization to Dept./Branch & Innovations

#### Semester-wise structure of Curriculum

**[L= Lecture, T = Tutorials, P = Practicals & C = Credits]**

### JAGANNATH UNIVERSITY BACHELOR OF TECHNOLOGY COMPUTER SCIENCE AND ENGINEERING

#### COMMON TO ALL BRANCHES FIRST SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical		Total	Credits
							IA	EA	IA	EA		
<b>BTCS 101</b>	Basic Science Courses	Physics (Semi-Conductor Physics)	BSC	3	1	4	30	70	20	30	150	6
<b>BTCS 102</b>	Basic Science Courses	Mathematics-I (Calculus & Linear Algebra)	BSC	3	1	0	30	70	-	-	100	4
<b>BTCS 103</b>	Engineering Science Courses	Basic Electrical Engineering	ESC	3	1	2	30	70	20	30	150	5
<b>BTCS 104</b>	Engineering Science Courses	Engineering Graphics and Design	ESC	1	0	4	20	30	20	30	100	3
<b>BTCS 105</b>	Engineering Science Courses	Computer Fundamentals	ESC	3	0	0	30	70	-	-	100	3

<b>BTCS 106</b>	Humanities & Social Sciences including Management	English and Communication Skills	HSMC	2	0	2	20	30	20	30	100	3
<b>BTCS 107</b>	Engineering Science Courses	Workshop/ Manufacturing Practices	ESC	0	0	2	-	-	20	30	50	1
<b>TOTAL</b>											<b>750</b>	<b>25</b>

## SECOND SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation						
Code	Type of Course	Course Title		L	T	P	Theory		Practical				
							IA	EA	IA	EA	Total	Credits	
<b>BTCS 201</b>	Basic Science Courses	Chemistry-I	BSC	3	1	4	30	70	20	30	150	6	
<b>BTCS 202</b>	Basic Science Courses	Mathematics-II (Probability and Statistics)	BSC	3	1	0	30	70	-	-	100	4	
<b>BTCS 203</b>	Engineering Science Courses	Programming for Problem Solving	ESC	3	0	4	30	70	20	30	150	5	
<b>BTCS 204</b>	Engineering Science Courses	Workshop/ Manufacturing Practices	ESC	1	0	4	-	-	30	70	100	3	
<b>BTCS 205</b>	Humanities & Social Sciences including Management	English	HSMC	2	0	2	20	30	20	30	100	3	
<b>TOTAL</b>											<b>600</b>	<b>21</b>	

## THIRD SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation						
Code	Type of Course	Course Title		L	T	P	Theory		Practical				
							IA	EA	IA	EA	Total	Credits	
<b>BTCS 301</b>	Engineering Science Courses	Analog and Electronic Circuits	ESC	3	0	4	30	70	20	30	150	5	
<b>BTCS 302</b>	Professional Core Courses	Data Structure & Algorithms	PCC	3	0	4	30	70	20	30	150	5	
<b>BTCS 303</b>	Professional Core Courses	Digital Electronics	PCC	3	0	4	30	70	20	30	150	5	

<b>BTCS 304</b>	Professional Core Courses	IT Workshop (Sci Lab/ MATLAB)	PCC	1	0	4	20	30	20	30	100	3
<b>BTCS 305</b>	Basic Science Courses	Mathematics-III (Differential Calculus)	BSC	3	0	0	30	70	-	-	100	3
<b>BTCS 306</b>	Humanities & Social Sciences including Management	Humanities-1 Communication Skills	HSMC	2	0	2	20	30	20	30	100	3
<b>TOTAL</b>											<b>750</b>	<b>24</b>

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**FOURTH SEMESTER**

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical			
							IA	EA	IA	EA	Total	Credits
<b>BTCS 401</b>	Professional Core Courses	Discrete Mathematics	PCC	3	1	0	30	70	-	-	100	4
<b>BTCS 402</b>	Engineering Science Courses	Computer Organization & Architecture	ESC	3	0	4	30	70	20	30	150	5
<b>BTCS 403</b>	Professional Core Courses	Operating Systems	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 404</b>	Professional Core Course	Design and Analysis of Algorithms	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 405</b>	Humanities & Social Sciences including Management	Management-I (Organizational Behaviour/ Finance & Accounting))	HSMC	3	0	0	30	70	-	-	100	3
<b>BTCS 406</b>	Mandatory Courses	Environmental Sciences	MC	3	0	0	30	70	-	-	100	3
<b>TOTAL</b>											<b>750</b>	<b>25</b>

**FIFTH SEMESTER**

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical			
							IA	EA	IA	EA	Total	Credits
<b>BTCS 501</b>	Engineering Science Course	Signals & Systems	ESC	3	0	0	30	70	-	-	100	3
<b>BTCS 502</b>	Professional Core Courses	Database Management Systems	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 503</b>	Professional Core Courses	Formal Language & Automata Theory	PCC	3	0	0	30	70	-	-	100	3
<b>BTCS 504</b>	Professional Core Courses	Object Oriented Programming	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 505</b>	Humanities & Social Sciences	Humanities-II Fundamentals of linguistics	HSMC	3	0	0	30	70	-	-	100	3

	including Management											
<b>BTCS 506</b>	Professional Elective Courses	<u>Elective-I</u> Software Engineering	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 507</b>	Mandatory Courses	Constitution of India/ Essence of Indian Traditional Knowledge	MC	3	0	0	30	70	-	-	100	3
<b>TOTAL</b>											<b>800</b>	<b>25</b>

### SIXTH SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical			
							IA	EA	IA	EA	Total	Credits
<b>BTCS 601</b>	Professional Core Course	Compiler Design	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 602</b>	Professional Core Courses	Computer Networks	PCC	3	0	4	30	70	20	30	150	5
<b>BTCS 603</b>	Professional Elective Courses	<u>Elective-II(any one)</u> A. Image Processing B. Graph Theory C. Artificial Intelligence	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 604</b>	Professional Elective Courses	<u>Elective-III (any one)</u> A. Computer Graphics B. Advance Computer Architecture C. Embedded Systems	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 605</b>	Open Elective Courses	<u>Open Elective-I (any one) (Humanities)</u> A. ICT for Development B. Operations Research C. Human Resource Management	OEC	3	0	0	30	70	-	-	100	3
<b>BTCS 606</b>	Project	Project-1		0	0	6	-	-	30	70	100	3
<b>TOTAL</b>											<b>700</b>	<b>22</b>

### SEVENTH SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical			
							IA	EA	IA	EA	Total	Credit

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<b>BTCS 701</b>	Professional Elective Courses	<u>Elective-IV (any one)</u> A. Optimization Techniques B. Web and Internet Technology C. Cryptography and Network Security	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 702</b>	Professional Elective Courses	<u>Elective-V (any one)</u> A. Data analytics using Python B. Cloud Computing C. R Programming D. Java Programming	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 703</b>	Open Elective Courses	<u>Open Elective-II (any one)</u> A. E-Commerce B. Economic Policies in India C. Soft Skills and Interpersonal Communication	OEC	3	0	0	30	70	-	-	100	3
<b>BTCS 704</b>	Basic Science Courses	Biology	BSC	2	1	0	30	70	-	-	100	3
<b>BTCS 705</b>	Project	Project-II		0	0	12	-	-	100	100	200	6
<b>TOTAL</b>											<b>600</b>	<b>18</b>

### EIGHTH SEMESTER

Theory Papers			Course Category	No. of Teaching Hours			Marks Allocation					
Code	Type of Course	Course Title		L	T	P	Theory		Practical			
							IA	EA	IA	EA	Total	Credits
<b>BTCS 801</b>	Professional Elective Courses	<u>Elective-VI (any one)</u> A. Optical Network Design B. High Speed Network C. Data Mining	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 802</b>	Open Elective Courses	<u>Open Elective-III (any one)</u> A. Machine Learning B. Soft Computing C. Neural Networks and Deep Learning	PEC	3	0	0	30	70	-	-	100	3
<b>BTCS 803</b>	Open Elective Courses	<u>Open Elective-IV (any one)</u> A. Intellectual Property Rights B. Disaster Management C. Cyber Law and Ethics	OEC	3	0	0	30	70	-	-	100	3
<b>BTCS 804</b>	Project	Project-III		0	0	12	-	-	100	100	200	6

<b>TOTAL</b>								<b>500</b>	<b>15</b>
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**Total Credits: 175**

**Note: Duration of University Examination –**

**Theory: 3 Hrs    Practical: 2 Hrs**

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