

# **B.Sc. Computer Science**

**Supportive/Allied Disciplines  
Mathematics and Commerce**

**Programme : B.Sc. Computer Science  
Supportive/Allied Disciplines : Mathematics and Commerce**

**A. Distribution of Courses, Credits and Contact Hours**

Part	Type of Course	Total No. of Courses	Credits per Course	Total Credits	Percentage in Total Credits	Total Contact Hours	Percentage in Total Contact Hours
I	Language: Tamil/Malayalam/Hindi/French	2	4	8	5.71	10	5.56
II	English	2	4	8	5.71	10	5.56
III	<b>Supportive/Allied (Compulsory)</b>						
	Theory	4	4	16	11.43	16	8.89
	<b>Core (Compulsory)</b>						
	Generic/Cluster Core	8	4	32	52.14	36	53.89
	Discipline Centric Core	5	4	20		25	
	Core Laboratory	8	2	16		32	
	Project/Industrial Training/Internship	1	5	5		4	
	<b>Elective (Optional)</b>						
	Discipline Elective : Theory	2	4	8	13.57	10	12.78
	Discipline Centric Elective : Laboratory	1	4	4		5	
	Generic/Cluster Elective	1	4	4		5	
	Open (Inter-disciplinary) Elective	1	3	3		3	
	<b>Ability (Skill) Enhancement</b>						
	Soft and Quantitative Skills	4	0-1	2	4.29	10	8.89
	Value Added Technical Skills	2	1	2		4	
Training on Skill Sets	1	2	2	2			
IV	<b>Foundation</b>						
	Compulsory	2	2	4	5.71	4	4.44
	Elective (Optional)	2	2	4		4	
V	Extension	1	2	2	1.43	Extra	-
	<b>Total</b>	<b>47</b>	<b>0-5</b>	<b>140</b>	<b>100</b>	<b>180</b>	<b>100</b>

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**B. List of Supportive/Allied, Core and Elective Courses**

**Supportive/Allied Courses (Compulsory)**

**Theory:**

- 16UCU301 : Computational Mathematics
- 16UCU302 : Discrete Structures and Optimization Techniques
- 16UCW303 : Total Quality Management
- 16UCW304 : Business Accounting

**Core Courses (Compulsory)**

**Generic/Cluster:**

- 16UCU401 : Programming in C
- 16UCU402 : Computer System Architecture
- 16UCU403 : Object Oriented Programming using C++
- 16UCU404 : Operating Systems
- 16UCU405 : Data Structure and Algorithm
- 16UCU406 : Relational Data Base Management System
- 16UCU407 : Computer Networks
- 16UCU408 : Programming in Java

**Discipline Centric:**

- 16UCS501 : Artificial Intelligence and Expert System
- 16UCS502 : Data Mining and Data Warehousing
- 16UCS503 : Software Testing
- 16UCS504 : WAP and XML Programming
- 16UCS505 : Distributed Computing

**Laboratory:**

- 16UCU551 : Programming in C
- 16UCU552 : Object Oriented Programming using C++
- 16UCU553 : Data Structures
- 16UCU554 : Programming in Java
- 16UCU555 : Programming in dot-Net
- 16UCU556 : Programming in PHP and MYSQL
- 16UCS557 : Software Testing
- 16UCS558 : WAP and XML

**Elective Courses (Optional)**

**Generic/Cluster (Any One Course):**

- 16UCU701 : Soft Computing

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16UCU702 : Cyber Security  
16UCU703 : Information Retrieval

**Discipline Centric:**

**Group 1(Any One Course)**

16UCS801 : Software Quality Assurance  
16UCS802 : Middleware Technologies  
16UCS803 : Big Data Analytics

**Group 2(Any One Course)**

16UCS804 : Internet of Things  
16UCS805 : Animation Techniques  
16UCS806 : Open Source Software

**Group 3(Any One Course)**

Advanced Laboratory in :  
16UCS807 : Open Source Software  
16UCS808 : Animation Techniques  
16UCS809 : Data Analytics

**Inter-disciplinary Elective Courses for other Disciplines**

16UCS601 : HTML  
16UCS602 : Unix Programming  
16UCS603 : Multimedia and its Applications

**National/International Certification Programmes**

1. Diploma in Project Management (Alison)
2. Diploma in HTML5, CSS3 and Java Script Course (Alison)
3. Web Application Development : Basic Concepts (University of Mexico)
4. Cyber Security and its Ten Domains (University systems of Georgia via Coursera)
5. Online Spoken Tutorial by MHRD

**Explanation for Course Code:**

**First 02 Digits : Year 2016; Third Digit : Level of the Programme (U : UG / P : PG);  
Fourth and Fifth Digits : Cluster / Discipline Code; Last 03 Digits : Nature of the  
Course (Core/Elective/Supportive etc.,)**

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**C. Semester-wise Distribution of Courses, Credits, Marks and  
Contact Hours**

Part	Type of Course	Course Code	Title of the Course	Credits	Marks	Contact Hours/Week
<b>Semester I</b>						
I	Language	16UOT101/ 16UOM101/ 16UOH101/ 16UOF101	Modern Literature, Short Story, Grammar & History of Literature / Malayalam – I/ Hindi – I/ French – I	4	100	5
II	English	16UOE201	Language through Literature	4	100	5
III	Supportive/Allied : Mathematics - 1	16UCU301	Computational Mathematics	4	100	4
III	Generic/Cluster Core -1	16UCU401	Programming in C	4	100	4
III	Generic/Cluster Core -2	16UCU402	Computer System Architecture	4	100	4
III	Core Laboratory - 1	16UCU551	Programming in C	2	100	4
III	Ability (Skill) Enhancement	16UAB381	Soft and Quantitative Skills – I	-	CIA	2
IV	Compulsory Foundation - 1	16UFC901	Environmental Studies	2	100	2
V	Extension	16UEX951	NSS/YRC/RRC	-	CIA	Extra
<b>Sub-Total</b>				<b>24</b>	<b>700</b>	<b>30</b>
<b>Semester II</b>						
I	Language	16UOT102/ 16UOM102/ 16UOH102/ 16UOF102	Sangam Literature, Epics, Prose, Grammar & History of Literature/ Malayalam – II/ Hindi – II/ French – II	4	100	5
II	English	16UOE202	Language for Empowerment	4	100	5
III	Supportive/Allied : Mathematics - 2	16UCU302	Discrete Structures and Optimization Techniques	4	100	4
III	Generic/Cluster Core -3	16UCU403	Object Oriented Programming using C++	4	100	4
III	Generic/Cluster Core -4	16UCU404	Operating Systems	4	100	4
III	Core Laboratory - 2	16UCU552	Object Oriented Programming using C++	2	100	4
III	Ability (Skill) Enhancement	16UAB382	Soft and Quantitative Skills – II	-	CIA	2
IV	Compulsory Foundation - 2	16UFC902	Value Education: Human Rights	2	100	2
V	Extension	16UEX951	NSS/YRC/RRC	-	CIA	Extra
<b>Sub-Total</b>				<b>24</b>	<b>700</b>	<b>30</b>
<b>Semester III</b>						

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III	Supportive/Allied : Commerce - 1	16UCW303	Total Quality Management	4	100	4
III	Generic/Cluster Core -5	16UCU405	Data Structure and Algorithm	4	100	5
III	Generic/Cluster Core -6	16UCU406	Relational Data Base Management System	4	100	5
III	Discipline Centric Core - 1	16UCS501	Artificial Intelligence and Expert System	4	100	5
III	Core Laboratory - 3	16UCU553	Data Structures	2	100	4
III	Ability (Skill) Enhancement	16UAB383	Soft and Quantitative Skills – III	1	100	3
III	Ability (Skill) Enhancement	16UCS381	Value Added Technical Skills – I	1	100	2
IV	Elective Foundation - 1	16UFE901 or 16U FE902 or 16UFE903/ 16UFE904	Basic Tamil – I or Advanced Tamil – I or General Awareness/ Constitution of India	2	100	2
V	Extension	16UEX951	NSS/YRC/RRC	-	CIA	Extra
<b>Sub-Total</b>				<b>22</b>	<b>800</b>	<b>30</b>
<b>Semester IV</b>						
III	Supportive/Allied : Commerce - 2	16UCW304	Business Accounting	4	100	4
III	Generic/Cluster Core -7	16UCU407	Computer Networks	4	100	5
III	Generic/Cluster Core -8	16UCU408	Programing in Java	4	100	5
III	Core Laboratory - 4	16UCU554	Programing in Java	2	100	4
III	Discipline Centric Elective - 1	16UCS801/ 16UCS802/ 16UCS803	Software Quality Assurance/ Middleware Technologies/ Big Data Analytics	4	100	5
III	Ability (Skill) Enhancement	16UAB384	Soft and Quantitative Skills – IV	1	100	3
III	Ability (Skill) Enhancement	16UCS382	Value Added Technical Skills – II	1	100	2
IV	Elective Foundation - 2	16UFE905 or 16U FE906 or 16UFE907/ 16UFE908	Basic Tamil – II or Advanced Tamil – II or Yoga for Human Excellence/ Women's Rights	2	100	2
V	Extension	16UEX951	NSS/YRC/RRC	2	100	Extra
<b>Sub-Total</b>				<b>24</b>	<b>900</b>	<b>30</b>
<b>Semester V</b>						
III	Discipline Centric Core - 2	16UCS502	Data Mining and Data Warehousing	4	100	5
III	Generic/Cluster Elective	16UCU701/ 16UCU702/ 16UCU703	Soft Computing/ Cyber Security/ Intelligence System (Robotics)	4	100	5
III	Discipline Centric Elective - 2	16UCS804/ 16UCS805/ 16UCS806	Internet of Things/ Animation Techniques/ Open Source Software	4	100	5
III	Discipline Centric Elective - 3	16UCS807/	Advanced Laboratory in : Open Source Software /	4	100	5

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		16UCS808/ 16UCS809	Animation Techniques / Data Analytics			
III	Core Laboratory - 5	16UCU555	Programming in dot-Net	2	100	4
III	Core Laboratory - 6	16UCU556	Programming in PHP and MYSQL	2	100	4
III	Ability (Skill) Enhancement	16UCS383	Training on Skill Sets	2	100	2
<b>Sub-Total</b>				<b>22</b>	<b>700</b>	<b>30</b>
<b>Semester VI</b>						
III	Discipline Centric Core - 3	16UCS503	Software Testing	4	100	5
III	Discipline Centric Core - 4	16UCS504	WAP and XML Programming	4	100	5
III	Discipline Centric Core - 5	16UCS505	Distributed Computing	4	100	5
III	Open (Inter-disciplinary) Elective	Course offered by other Disciplines		3	100	3
III	Core Laboratory - 7	16UCS557	Software Testing	2	100	4
III	Core Laboratory - 8	16UCS558	WAP and XML	2	100	4
III	Discipline Centric Core - 6	16UCS581	Project/Industrial Training/Internship	5	100	4
<b>Total</b>				<b>24</b>	<b>700</b>	<b>30</b>

Total Credits:  $24+24+22+24+22+24 = 140$

Total Marks:  $700+700+800+900+700+700 = 4500$