



**TRIBHUVAN COLLEGE  
OF  
ENVIRONMENT & DEVELOPMENT SCIENCES  
NALANDA UNIVERSITY CENTRE, NEEMRANA**



## **Program Structure**

**B.Sc. (Hons.) Computer Science**

**Academic Year: 2025-26 Onwards**

**Department of Computer & Computational Sciences**

**Tribhuvan College of Environment and Development Sciences  
Nalanda University Centre  
Neemrana, Rajasthan – 301705**



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**B.Sc. (Hons) Computer Science**  
**Program Structure**  
**(2025-26 Onwards)**

<b>Sr. No.</b>	<b>Heading</b>	<b>Particulars</b>
1	Title of the course	B.Sc. (Hons) Computer Science
2	Eligibility for admission	12th or Equivalent
3	Passing percentage	40%
4	Semesters	I to VIII
5	Level	UG
6	Pattern	04 years & 08 semesters CBGS
7	To be implemented from	Academic year 2025-26 (in a progressive manner)



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**B.Sc. (Hons) Computer Science**  
*(To be implemented from Academic Year- 2025-26)*



SEMESTER I

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC101	Fundamentals of Computer Science	Major	4 (3+0+1)
CSC102	Applied Mathematics-1	Major	4 (3+1+0)
CSC103	Problem Solving through C Programming	Major	4 (3+0+1)
SEC102	Git and Github Essentials	Skill Enhancement	3 (2+0+1)
MDC102	Management Principles & Practices	Multidisciplinary	3 (3+0+0)
AEC101	English and Communication Skills - I	Ability Enhancement	2 (2+0+0)
VAC101	Constitutional Values, Rights and Duties	Value Added	2 (2+0+0)
Semester Credits			22



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**SEMESTER II**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC201	Data Structure	Major	4 (2+1+1)
CSC202	Applied Mathematics-II	Major	4 (3+1+0)
CSC203	Digital Logic and Circuit Design	Major	3 (3+0+0)
SEC201	Python Programming	Skill Enhancement	3 (2+0+1)
MDC202	Communication in Environment Sciences & Sustainability	Multidisciplinary	3 (3+0+0)
AEC201	English and Communications Skills-II	Ability Enhancement	2 (2+0+0)
VAC201	Introduction to Indian Knowledge Systems	Value Added	2 (2+0+0)
<b>Semester Credits</b>			<b>21</b>
<b>UG Certificate Credits</b>			<b>43</b>

**SEMESTER III**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC301	Discrete Mathematics	Major	4 (3+1+0)
CSC302	Database Management System	Major	4 (2+1+1)
CSC303	OOP with C++	Major	4 (2+1+1)
SEC302	Linux and Shell Scripting	ment	3 (2+0+1)
MDC301	Innovation and Entrepreneurship	Multidisciplinary	3 (2+1+0)
AEC301	Academic Writings	Ability Enhancement	2 (2+0+0)
VAC301	Health and Wellness	Value Added	2 (2+0+0)
<b>Semester Credits</b>			<b>22</b>



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**SEMESTER IV**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC401	Organization and Architecture	Major	3 (3+0+0)
CSC402	Formal Language and Automata Theory	Major	3 (2+1+0)
CSC403	Design and Analysis of Algorithm	Major	4 (3+0+1)
CSC404	Java Programming	Major	4 (2+1+1)
SWD401 / IOT401	Web Development using using HTML, CSS, and JavaScript / Internet of Things	Minor	4 (2+1+1) / 4 (2+1+1)
AEC401	Basics of Intellectual Property Rights	City ancement	2 (2+0+0)
VAC401	Ethics and Values	Value Added	2 (2+0+0)
SIS401	Summer Internship	-	3 (0+0+3)
<b>Semester Credits</b>			<b>25</b>
<b>UG Diploma Credits</b>			<b>90</b>

**SEMESTER V**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC501	Operating System	Major	3 (3+0+0)
CSC502	Computer Networks	Major	4 (3+0+1)
CSC503	Software Engineering	Major	3 (3+0+0)
CSC504 / MOC501	Compiler Design / Optimization Theory and Algorithms	Major / MOOC	3 (3+0+0) / 3 (3+0+0)
SWD501 / IOT501	Responsive Web Design with Bootstrap and Flexbox / Microcontroller Programming	Minor	4 (2+1+1) / 4 (2+1+1)
SWD502 / IOT502	Advanced JavaScript and Client-Side Programming / Sensors and Actuators	Minor	4 (2+1+1) / 4 (2+1+1)
<b>Semester Credits</b>			<b>21</b>



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**SEMESTER VI**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC601	Introduction to Artificial Intelligence and Machine Learning	Major	4 (3+0+1)
CSC602	Data Warehousing and Data Mining	Major	4 (3+0+1)
CSC603	Research Methodology	Major	4 (2+1+1)
SWD601 / IOT601	Database Integration and Web Services (MySQL & MongoDB) / IoT Data Analytics	Minor	4 (2+1+1) / 4 (2+1+1)
SWD602 / IOT602	Full Stack Web Deployment / Security in IoT Systems	Minor	4 (2+1+1) / 4 (2+1+1)
<b>Semester Credits</b>			<b>20</b>
<b>UG Degree Credits</b>			<b>131</b>

**SEMESTER VII**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
CSC701	Image Processing	Major	4 (3+0+1)
CSC702 / MOC701	Human-Computer Interaction / Generative AI and Large Language Models	Major	3 (3+0+0) / 3 (3+0+0)
SWD701 / IOT701	Server-Side Programming with ASP.NET Core and C# / IoT Communication Protocols	Minor	4 (2+1+1) / 4 (2+1+1)
SWD702 / IOT702	Cloud Deployment for Web Applications / Edge and Fog Computing	Minor	4 (2+1+1) / 4 (2+1+1)
SWD703 / IOT703	Computer Vision / Recent Advancement in IoT	Minor	4 (2+1+1) / 4 (2+1+1)
DIS701	Project Based Learning	--	2 (0+0+2)
<b>Semester Credits</b>			<b>21</b>



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**SEMESTER VIII**

Course Code	Course Title	Type/Stream	Credit (L+T+P)
DIS801	Dissertation / Internship Progress Evaluation	--	02 (0+0+2)
DIS802	Dissertation and Viva Voce / Internship Report and Viva Voce	--	18 (0+0+18)
<b>Semester Credits</b>			<b>20</b>
<b>B.Sc. (Hons) Computer Science Credits</b>			<b>172</b>

<b>Major Stream Credits</b>	<b>81</b>
<b>Minor Stream Credits</b>	<b>32</b>
<b>Multidisciplinary Course Credits</b>	<b>09</b>
<b>Skill Enhancement Course Credits</b>	<b>09</b>
<b>Ability Enhancement Course Credits</b>	<b>08</b>
<b>Value Added Course Credits</b>	<b>08</b>
<b>Summer Internship</b>	<b>03</b>
<b>Project Based Learning</b>	<b>02</b>
<b>Dissertation</b>	<b>20</b>
<b>Total Credits [ B.Sc. (Hons) Computer Science]</b>	<b>172</b>

**Note: -**

- I. Practical's will be based on the theory courses taught during the semester (Only applicable to courses that include practical components).
- II. For gold medal a student has to pass in all the subjects (major, minor stream, multidisciplinary, skill enhancement, ability enhancement, value added courses).