



**Bachelor of Technology
in
Software Technology
Multimedia & Web Technology
Network Technology**

Student Handbook

**Department of ICT
Faculty of Training Technology
University of Vocational Technology**

May 2016

Rationale for the Bachelor of ICT Degrees:

The general and rapid spread of the ICT technology is very apparent in today's world. Computer technology is present in a very large percentage of appliances; elements of process control equipment and appear on almost every professional's desk as well as a multitude of smaller computerized devices in handbags or jacket pockets. Electronics, computing and communications are very widespread and have had a profound impact on most industrial sectors. In recent years the spread and dynamic of information and communications technologies (ICT) in Sri Lanka have been steadily increasing. Today the high importance of ICT for the economy and all areas including business, services, domestic and leisure is obvious. ICT developments have changed the society to an 'information society' and new possibilities as well as challenges in all areas of work and life have been arisen, in particular in ICT work areas itself.

The new technologies within Information and Communications Technology (ICT) are creating fundamental changes within business and the world economy as a whole and success in this new, and digitally driven, economy. The ICT sector itself faces particular challenges in fulfilling its role in contributing to the success of the national economic success. These include keeping pace with the demands of rapid technological development and the constant innovation in products and services.

The B.Tech Program in Information & Communication Technology (ICT) is three year course of study that combines studies in computer science, software development, information systems, multimedia, web development and computer networks.

Establishment of University of Vocational Technology and the introduction of the degree of bachelor of ICT will be great landmark within the TVET in Sri Lanka. This will provide opportunities for the COT's (Colleges of Technology), NVQ level 6, past graduates who are serving in the industry as ICT professionals to obtain degree and post degree level qualification from their specialized fields of ICT.

The program has a flexible structure allowing students to choose from a number of specializations: software development, information systems, computer networks, web development and multimedia production. The program includes the study of contract administration, business management and the presentation of information. Over and above this the student will be able to specialize in a field relevant to the industry, which will enhance the capability and value of the B.Tech graduate to the Information and Communication Technology Industry. These degree programs are specially designed for COT's NVQ Levels 5 and 6 graduates to upgrade their competencies up to degree level.

Faculty of Training Technology:

Mr. L,W,S, Kularatne , Senior Lecturer -II, Dean of the Faculty.

Department of ICT

Ms. T.K Malwatta, Senior Lecturer – II, Head of the Department

Mr. P. Uruthiran, Lecturer

Ms. SG Nambuwasam, Lecturer

Mr. RMCA Bandula, Lecturer

Mr. HAPI Pathirana, Lecturer

Mr. A.S.K. Wijayawardena, Lecturer

Ms. N.W.K.D.V.P.Opatha Lecturer

Mr. PHSS Wijayarathna, Senior Engineering Teaching Assistant

Admission Requirements:

- i. NVQ level 5 or 6, ICT diploma holder from any College of Technology (COT)

OR

- ii. HNDE, NDT, NDES, NDET, NDICT in the field of ICT and acceptable to the Academic Council of UNIVOTEC

OR

- iii. Any other qualification which the Tertiary and Vocational Education Commission have accepted as deemed to be equivalent to NVQ Level 5 or 6.

Exemptions may be granted in relevant modules after a proper evaluation for those who have NVQ level 6 or equivalent qualifications. Preference will be given to those applications having past diploma industrial experience of at least one year.

Student Selection:

Eligible candidates are required to sit for aptitude test. Selection is done based on the marks obtain by the candidates.

Registration:

Registration is the acceptance of the selected applicant as a student in the University. Prior to registration the applicant is issued with an offer letter for a particular academic programme along with a voucher to pay the relevant course fee, of which following may be the constituents:

- a) Registration fee – To be paid at the first registration and subsequently at re-registrations
- b) Tuition fee
- c) Facility fee
- d) Library deposit (Refundable)
- e) Library fees (nonrefundable)
- f) Laboratory fee if applicable (nonrefundable)

The letter calling for registration will request the applicant to produce the original documents of the following:

- a) School leaving certificate
- b) National Identity Card or Passport
- c) Birth Certificate
- d) Certificates of all educational qualifications
- e) Documents requested to be obtained from the employer
- f) Any other documents depending on the study programme
- g) Documentary evidence for the payment of the Registration fees, course fees, Library fees, etc.

University has no obligations to refund the above fees in case of a disqualification of an applicant for reasons due to lapse/s from the part of the applicant at the registration stage. The applicant who is duly registered for an academic programme shall become a student of the University and will receive a Student number and a Student Identification Card.

The selected candidate shall personally appear before the registration desk for registration, unless the provision is available for online registration.

Credit system and the Duration:

The course structure is based on module system. Each module has been assigned a Credit Value, depending upon the number of notional hours required to achieve the outcome of the module. Notional hours include directed learning as well as self-directed learning. One credit is equivalent of 25 notional hours of learning. This system is bench marked with the European Credit Transfer and Accumulation System (ECTS).

Duration of the degree program is 3 years. One academic year consists of two semesters. One semester may consist of 15 weeks for full time and 22 weeks for part time programmes. Total notional hours per semester, is 750. A total of 25 notional hours is equal to 01 credit. Total number of credits per semester is 30. B.Tech. in ICT degree is a 3 year full time course and 4 year part time.

Course Structure:

Module Code:

XX10501	-	XX	-	Department offering the module
		1	-	Semester
		05	-	Number of Credits
		01	-	Serial number of the module

Module Type:

The degree consists of Compulsory (C) modules, Elective (E) modules and Optional (O) modules. Core compulsory modules and Elective modules designated as GPA modules will be used to calculate the grade point averages.

- C - Compulsory
- E - Elective
- O - Optional
- G - GPA
- NG - Non GPA

B.Tech. in Software Technology:

Module Code	Module Title	Type	Credits	Year I		Year II		Year III	
				S-I	S-II	S-I	S-II	S-I	S-II
EE10404	Mathematics	C/G	4	√					
IT10301	Computer Architecture & Operating System	C/G	3	√					
IT10402	Object-Oriented Programming with C++	C/G	4	√					
IT10403	Software Development practices	C/G	4	√					
IT10404	Computer Networks	C/G	4	√					
IT10305	Database Analysis and Design	C/G	3	√					
IT10406	Internet Technologies	C/G	4	√					
LS10316	Communication Skills-I	C/NG	3	√					
IT20401	Fundamentals of Mass Communication	C/G	4		√				
IT20402	Data Structures and Algorithms	C/G	4		√				
IT20403	Network Administration	C/G	4		√				
IT20404	Database Programming	C/G	4		√				
IT20405	Database Management Systems	C/G	4		√				
IT20306	Enterprise Technologies and Architectures	C/G	3		√				
IT20607	Web Programming	C/G	6		√				
LS20317	Communication Skills-II	C/NG	3		√				
IT30401	Programming in .NET	C/G	4			√			
IT30602	Web Technology & Applications	C/G	6			√			
IT30303	Digital Electronics	C/G	3			√			
IT30604	Software Architectures and Design	C/G	6			√			
IT30405	Software Deployment and Evolution	C/G	4			√			
MS30411	Project Management Practices	C/G	4			√			
MS30412	Entrepreneurship Development and Management	C/G	4			√			
IT40601	Programming in Java	C/G	6				√		
IT40402	Real-Time programming	C/G	4				√		
IT40603	Advance .Net	C/G	6				√		
IT40404	Software Testing & Reliability	C/G	4				√		
IT40405	Database Implementation	C/G	4				√		
MS40413	Research Methods	C/G	3				√		
ET40290	Stress Management	O/NG	2				√		
EE40290	Cosmology	O/NG	2				√		
EE40291	Fundamentals of Energy Management	O/NG	2				√		
IT51401	Work Based / Industrial Training	C/G	18					√	
IT60401	Enterprise System Design	C/G	4						√
IT60502	Enterprise .NET	C/G	6						√
IT60503	Enterprise Java	C/G	6						√
IT60404	Professional Issues in Information Technology	C/G	4						√
IT60405	Information Systems Management	C/G	4						√
IT60290	Photography	O/NG	2						√
MS60291	Occupational health & safety	O/NG	2						√
IT61808	Final Year Project (Software Development Project)	C/G	18						√

B.Tech. in Multimedia & Web Technology

Module Code	Module Title	Type	Credits	Year I		Year II		Year III	
				S-I	S-II	S-I	S-II	S-I	S-II
EE10404	Mathematics	C/G	4	√					
IT10301	Computer Architecture & Operating System	C/G	3	√					
IT10402	Object-Oriented Programming with C++	C/G	4	√					
IT10403	Software Development practices	C/G	4	√					
IT10404	Computer Networks	C/G	4	√					
IT10305	Database Analysis and Design	C/G	3	√					
IT10406	Internet Technologies	C/G	4	√					
LS10316	Communication Skills-I	C/NG	3	√					
IT20401	Fundamentals of Mass Communication	C/G	4		√				
IT20402	Data Structures and Algorithms	C/G	4		√				
IT20403	Network Administration	C/G	4		√				
IT20404	Database Programming	C/G	4		√				
IT20405	Database Management Systems	C/G	4		√				
IT20306	Enterprise Technologies and Architectures	C/G	3		√				
IT20607	Web Programming	C/G	6		√				
LS20317	Communication Skills-II	C/NG	3		√				
IT30401	Programming in .NET	C/G	4			√			
IT30602	Web Technology & Applications	C/G	6			√			
IT30303	Digital Electronics	C/G	3			√			
IT30311	Art and Design	C/G	3			√			
IT30612	2D and 3D Graphics	C/G	6			√			
IT30413	Audio & Video Production Techniques	C/G	4			√			
MS30411	Project Management Practices	C/G	4			√			
MS30412	Entrepreneurship Development and Management	C/G	4			√			
IT40311	Software Quality Assurance	C/G	4				√		
IT40612	Digital Signal Processing Techniques & Image Processing	C/G	6				√		
IT40413	Audio and Video Editing Techniques	C/G	4				√		
IT40614	Multimedia Product Development	C/G	6				√		
IT40615	Animation Technology and Applications	C/G	6				√		
MS40413	Research Methods	C/G	3				√		
ET40290	Stress Management	O/NG	2				√		
EE40290	Cosmology	O/NG	2				√		
EE40291	Fundamentals of Energy Management	O/NG	2				√		
IT51401	Work Based / Industrial Training	C/G	18					√	
IT60401	Enterprise System Design	C/G	4						√
IT60411	Web Interface Design & Application Software	C/G	4						√
IT60312	Multimedia Data Processing	C/G	3						√
IT60404	Professional Issues in Information Technology	C/G	4						√
IT60405	Information Systems Management	C/G	4						√
IT60290	Photography	O/NG	2						√
MS60291	Occupational health & safety	O/NG	2						√
IT61808	Final Year Project (Multimedia and Web Development Project)	C/G	18						√

B.Tech. in Network Technology

Module Code	Module Title	Type	Credits	Year I		Year II		Year III	
				S-I	S-II	S-I	S-II	S-I	S-II
EE10404	Mathematics	C/G	4	√					
IT10301	Computer Architecture & Operating System	C/G	3	√					
IT10402	Object-Oriented Programming with C++	C/G	4	√					
IT10403	Software Development practices	C/G	4	√					
IT10404	Computer Networks	C/G	4	√					
IT10305	Database Analysis and Design	C/G	3	√					
IT10406	Internet Technologies	C/G	4	√					
LS10316	Communication Skills-I	C/NG	3	√					
IT20401	Fundamentals of Mass Communication	C/G	4		√				
IT20402	Data Structures and Algorithms	C/G	4		√				
IT20403	Network Administration	C/G	4		√				
IT20404	Database Programming	C/G	4		√				
IT20405	Database Management Systems	C/G	4		√				
IT20306	Enterprise Technologies and Architectures	C/G	3		√				
IT20607	Web Programming	C/G	6		√				
LS20317	Communication Skills-II	C/NG	3		√				
IT30401	Programming in .NET	C/G	4			√			
IT30602	Web Technology & Applications	C/G	6			√			
IT30303	Digital Electronics	C/G	3			√			
IT30421	Data Communication	C/G	4			√			
IT30622	System Administration	C/G	6			√			
MS30411	Project Management Practices	C/G	4			√			
MS30412	Entrepreneurship Development and Management	C/G	4			√			
IT40621	Internetwork Switching	C/G	6				√		
IT40422	Internetwork Routing	C/G	4				√		
IT40623	Windows Server Administration	C/G	6				√		
IT40624	Network Systems	C/G	6				√		
IT40425	Wireless Communication	C/G	4				√		
MS40413	Research Methods	C/G	3				√		
ET40290	Stress Management	O/NG	2				√		
EE40290	Cosmology	O/NG	2				√		
EE40291	Fundamentals of Energy Management	O/NG	2				√		
IT51401	Work Based / Industrial Training	C/G	18					√	
IT60421	Information Systems Security & Practices	C/G	4						√
IT60422	Broadband Networks	C/G	4						√
IT60423	Photonics and Fiber Optics	C/G	4						√
IT60404	Professional Issues in Information Technology	C/G	4						√
IT60405	Information Systems Management	C/G	4						√
IT60290	Photography	O/NG	2						√
MS60291	Occupational health & safety	O/NG	2						√
IT61508	Project (Network Development Project)	C/G	18						√

Work Based/Industrial Training:

Fifth semester of the study programme is dedicated to this component of the degree. Purpose of this module is to enable students to apply competencies required through the academic programme to workplace experiences.

Students studying the degree in full time mode will be placed in various industrial establishments/worksites related to their fields of studying for a period of six months through National Apprentice and Industrial Training Authority (NAITA) under undergraduate in plant training scheme.

Those who are studying in the part time mode are required to undertake work based training in their places of work, under supervise of a senior officer. Work undertaken during this period should be different from the part time work which he/she is suppose to the in his/her job.

Final Year Project:

This module is given in the sixth semester. This is a group project, which provides opportunity for the students to enhance their ability in problem solving, team working and leadership using the competencies acquired throughout the undergraduate career through the implementation of a group project.

To successfully complete this module, students are expected to design and implement a challenging ICT related project applying knowledge and skills within a given timeframe and present technical ideas in written and oral form effectively.

Course Assessment System:

The performance of each student in each module will be evaluated by continuous assessments and a semester-end examination.

The weightings assigned for the continuous assessment component and the semester - end examination of a module will be as follows.

- Continuous Assessment 40% - 30%
- Semester - End Examination 60% 70%

The continuous assessment may consist of assignments, quizzes, laboratory work, practical, tutorials, demonstrations, presentations, projects, oral tests and mid semester tests. Weightings of each of these components used in the determination of the final grade for each module should be clearly conveyed in

writing to the students at the commencement of each module along with the outline of the module.

The fulltime and part-time students should maintain 80% and 60% of attendance respectively and satisfy the requirements specified in each module descriptor to be eligible to sit for the semester-end examination.

All Candidates should obtain at least 30% of the marks allocated for continuous assessment to get qualified to sit for the semester - end examination.

Grading System and Computation of Grade Point Average (GPA):

A letter grade shall be awarded to each module. The cut-off marks for each grade and the corresponding grade points are given below.

Grades	Marks	Grade Points
A+	90-100	4.00
A	80 – 89	3.70
B+	70 – 79	3.30
B	60 – 69	3.00
C+	50 – 59	2.70
C	40 – 49	2.00
D	30 – 39	1.00
E	01 – 29	0.00
F	0	0.00

- i. Grade D or above is required to earn credits for a module.
- ii. A minimum 30% should be obtained from continuous assessment for eligibility to sit for the end semester exam. A minimum requirement of 30% should be obtained from the semester - end Examination in order to obtain a grade D or above for a module.
- iii. A student satisfying continuous assessment requirements and getting between 1 – 29 marks for the semester end examination receives a symbol as E(ET) while a student getting 0 for the semester end examination receives symbol F(ET).
- iv. A student satisfying semester end examination requirements and getting between 1 and 29 marks for the continuous assessment receives a symbol as E(CA) a student getting 0 for the continuous assessment receives symbol as F(ET). A student getting between 1 and 29 marks for both the semester end examination & the continuous assessment receives the Grade E while a student getting 0 for both the

semester end examination & continuous assessment receives the Grade F.

- v. A student must repeat the part of the module examination/complete module examination having Grade E or F & must improve up to Grade D or C. The modules having Grade D are allowed to repeat only when the Semester Grade Point Average (SGPA) of a particular semester is less than 2.00. By repeating only the semester end examination/continuous assessment or both, the Grades F, E or D can be improved only up to a C grade and considered for calculating Grade Point Average (GPA). Repeating continuous assessment or semester end examination is considered as repeating the whole module.

Academic Concession:

Academic Concession may be granted to a student with the approval of the Faculty Board, in the event that a student is unable to sit for the semester-end examination due to illness or other compelling reason. In such instances the student must notify the Dean of the faculty within 48 hours of the cause. Further, the student should make an appeal with supporting documents to the Dean for an Academic Concession within one week from the date of the examination. The continuous assessment component can be carried forward to the next examination as the first attempt.

Semester Grade Point Average (SGPA):

The calculation of the Semester Grade Point Average will be based on the Grade Points earned for all modules registered in a semester (except those awarded with academic concession) weighted according to number of credits. The SGPA is rounded to the nearest second decimal place. The SGPA is reported on transcripts and Statement of Results that may be issued for each semester.

The formula for calculating SGPA is given below.

Semester GPA (SGPA) = Σ (Number of Credits for a semester module x Grade point obtained for the module)

Total number of credits for the Semester

Final Grade Point Average (FGPA):

The Final Grade Point Average is the absolute academic standing of the student calculated on the basis of SGPA. The FGPA will be calculated using the following formula.

$$\text{Final GPA (FGPA)} = \frac{\Sigma (\text{Semester GPA})}{\text{Number of Semesters}}$$

Unsatisfactory Standing on Academic Performance:

If the student's SGPA falls between 1.50 and 1.99 the student will be placed on Academic Warning.

A student who falls into one of the following categories of the SGPA will not be permitted to register for a new module until the SGPA is upgraded to 2.00 or more.

- i. SGPA < 1.50 in any two semesters
- ii. SGPA < 1.50 in any semester and $1.50 \leq \text{SGPA} < 2.00$ in any two semesters
- iii. $1.50 \leq \text{SGPA} < 2.00$ in any three semesters

Graduation Requirements:

Credit Requirements:

A student should satisfy the following requirements in order to be admitted to the Bachelor of Technology in Software Technology/Multimedia & Web Technology/Network Technology.

- i. A minimum total of 180 credits from modules specified.
- ii. A minimum Final Grade Point Average (FGPA) of 2.00
- iii. Any other mandatory requirement specified by the Academic Council

Key to Final Results (FGPA – Final Grade Point Average):

FGPA

3.7 or Above
3.30 – 3.69
2.70 – 3.29
2.00 – 2.69
Below 2.00

Final Results

First Class
Second Upper
Second Lower
Ordinary Pass
Incomplete

**University of Vocational Technology
Academic Calendar - 2016**

Full Time - Week Days

Month	January	February	March	April	May	June	July	August	September	October	November	December
Week	1	2	3	4	5	6	7	8	9	10	11	12
Academic session end \$2 (2015/16), \$4 (2014/5), and \$6 (2013/14)												
Study Leave												
Exam- \$2 (2015/2016) & Exam Board												
Exam- \$4 (2013/14)												
Selection Test - (2016/2017)												
Industry Training - \$5 (2013/2014)												
Registration (2016 / 2017)												
Foundation (2016 / 2017)												
New Year Vacation												
Academic Session - \$1 (16/17) & \$3 (15/16)												
Study Leave												
Vacation - \$1 (16/17) & \$3 (15/16)												
Academic session - \$2 (16/17) & \$4 (15/16) & \$6 (14/15)												

Part Time - Weekend

Month	January	February	March	April	May	June	July	August	September	October	November	December
Week	1	2	3	4	5	6	7	8	9	10	11	12
Academic Sessions \$ 2 (2015/16)												
End of Academic Session - \$3 (14/15) & \$5 (13/14)												
Study Leave - \$3 (14/15)												
Selection Test - \$2 (2016/2017) / Work based Training Assessment, \$5												
Registration												
Foundation												
New Year Vacation												
Academic Session - \$1 (16/17), \$4 (14/15),												
Academic Session - Final Year Projects \$6 (13/14)												
Exam \$2 (15/16)												
Study Leave - \$3 (15/16)												
Exam - \$3 (15/16)												
Vacation - \$3 (15/16)												
Academic Sessions - \$4 (15/16)												
Study Leave - \$1 (16/17), \$4 (14/15), \$6 (13/14)												
Exam \$1 (16/17), \$4 (14/15), \$6 (13/14)												
Vacation												
Academic Sessions - \$2 (16/17), \$5 (14/15)												
No examination on 14/14-02-2016 due to selection test												

