



CMS COLLEGE KOTTAYAM **(AUTONOMOUS)**

B.VOC Degree Programme **in** **INFORMATION TECHNOLOGY**

w.e.f 2018 admissions

Scheme and syllabus for B.Voc Information Technology

(To be introduced from 2018 admissions)

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge

The proposed vocational programme in Information Technology will be a judicious mix of skills, professional education related to Information Technology and also appropriate content of general education. It is designed with the objective of equipping the students to cope with the emerging trends and challenges in the Information Technology environment.

ELIGIBILITY FOR ADMISSION

Eligibility for admissions and reservation of seats for B.Voc Information Technology Industry shall be according to the rules framed by the University from time to time. No student shall be eligible for admission to B.Voc Information Technology unless he/she has passed the Plus Two of the Higher Secondary Board of Kerala or that of any other university or Board of Examinations in any state recognized as equivalent to the Plus Two of the Higher Secondary Board in Kerala, with not less than 45 % marks in aggregate. However SC/ST, OBC, and other eligible communities shall be given relaxation as per University rules. (Those who passed Vocational Higher Secondary course will get a weightage of 25 marks.)

CURRICULUM

The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components.

DURATION

The duration of the B. Voc Information Technology shall be three years consisting of six semesters. The duration of each semester shall be five months inclusive of the days of examinations. There shall be at least 90 working days in a semester and a minimum 540 hours of instruction in a semester.

PROGRAMME STRUCTURE

- The B. Voc Information Technology shall include:
- Language courses
- General Education Components
- Skill Components
- Project
- Industrial Training
- Soft Skills and Personality Development Programmes
- Industrial Visit

CREDIT CALCULATION

The following formula is used for conversion of time into credit hours.

- One Credit would mean equivalent of 18 periods of 60 minutes each, for theory, workshops/labs and tutorials;
- For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

COURSE STRUCTURE

NSQF Level	Skill Component Credits	General Education Credits	Normal calendar duration	Exit Points / Awards
Year 3	36	24	Six Semesters	B.Voc.
Year 2	36	24	Four semesters	Advanced Diploma
Year 1	36	24	Two semesters	Diploma
TOTAL	108	108 72		72

As per the UGC guidelines, there are multiple exit point for a candidate admitted in this course. If he/she is completing all the six credits successfully, he/she will get B. Voc degree in Information Technology. If he is completing the first four semesters successfully, he/she will get an advanced diploma in Computer Science. If he/she is completing the first two credits he/she will get a diploma in Computer Science. B Voc Degree holder is expected to acquire the skills needed for a Software developer or entrepreneur.

PROGRAMME STRUCTURE

SEMESTER I

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Listening and Speaking skills	4	4	1.		Programming in C	4	4
2.		Discrete Mathematics I	4	4	2.		Computer Architecture and Organization	4	4
3.		Introduction to IT	4	4	3.		Office Automation, Image Editing and Latex	3	3
					4.		Office	3	3

							Automation, Image Editing and Latex Lab		
					5.		C Programming Lab	4	4
Total			12	12	Total			18	18

SEMESTER II

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Writing and Presentation skills	4	4	1.		Data Base Management Systems	4	4
2.		Environmental Studies	4	4	2.		Object Oriented Programming using Java	4	4
3.		Discrete Mathematics-II	4	4	3.		Data Structures and Algorithms	4	4
					4.		Data Base Management Systems Lab	3	3
					5.		Java Programming Lab	3	3
Total			12	12	Total			18	18

SEMESTER III

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Statistical Methods & Probability	4	4	1.		Computer Networks	4	4
2.		Social Awareness	4	4	2.		Operating Systems	4	4
3.		Business informatics and Principles of Accounting	4	4	3.		Digital Electronics	4	4
					4.		Networks and Operating	3	3

							Systems Lab		
					5.		Digital Electronics Lab	3	3
Total			12	12	Total			18	18

SEMESTER IV

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Aptitude & Logical Reasoning	4	4	1.		Software Engineering and Testing	4	4
2.		Management Information Systems	4	4	2.		Embedded Systems and Internet of Things	4	4
3.		Principles of Management	4	4					
					3.		Object Oriented Modeling and Design	4	4
					4.		Internet of Things Lab	3	3
					5.		Computer Animation Lab	3	3
Total			12	12	Total			18	18

SEMESTER V

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Information security	4	4	1.		Web development	3	4
2.		Soft skills	4	4	2.		Mobile Application Development-Android	3	4

3.		Entrepreneurship Development	4	4	3.		Android Lab	3	3
					4.		Web development Lab	3	3
					5.		Project Phase I	4	4
					6.		Industrial Training	2	
Total			12	12	Total			18	18

SEMESTER VI

General Education					Skill Component				
No.	Course Code	Title	Credit	Hrs/Week	No.	Course Code	Title	Credit	Hrs/Week
1.		Digital Marketing	4	4	1.		Free and Open Source Software	4	4
2.		Informatics	4	4	2.		Microprocessors and PC Hardware	4	4
3.		IT & Society	4	4	3.		Microprocessors and PC Hardware Lab	3	3
					4.		Project Phase II	7	7
					5.		Industrial Visit		
Total			12	12	Total			18	18

SOCIAL SERVICE/ EXTENSION ACTIVITIES

Students are to participate in Extension/ NSS/ NCC or other specified social service, sports, literary and cultural activities during 3rd/ 4th semester. These activities have to be carried out outside the instructional hours and will fetch the required one credit extra over and above the minimum prescribed 180 credits

ATTENDANCE

The minimum number of hours of lectures, tutorials, seminars or practical which a student shall be required to attend for eligibility to appear at the end semester examination shall not be less than 75 per cent of the total number of lectures, tutorials, seminars or practical sessions. Internships, study tours and soft skill and personality development programmes are part of the course and students must attend in these activities to complete a semester.

EVALUATION AND GRADING

The Evaluation of each Course shall consists of two parts1) Continuous Evaluation (CE)

2) End Semester Evaluation (ESE)

The CE and ESE ratio shall be 1:4 for both Courses with or without practical. There shall be a maximum of 80 marks for ESE and maximum of 20 marks for CE. For all Courses (Theory and Practical), Grades are given on a 7-point scale based on the total percentage of mark (CE+ESE) as given below.

CRITERIA FOR GRADING

Percentage of marks	CCPA	Letter Grade
90 and above	9 and above	A+ Outstanding
80 to < 90	8 to <9	A Excellent
70 to <80	7 to <8	B Very Good
60 to < 70	6 to <7	C Good
50 to < 60	5 to <6	D Satisfactory
40 to < 50	4 to <5	E Adequate
Below 40	<4	F Failure

CONTINUOUS EVALUATION (CE)

All records of Continuous Evaluation shall be kept in the Department and shall be made available for verification by the University, if and when necessary

ATTENDANCE (MAX.MARKS 5):

The allotment of marks for attendance shall be as follows:

Attendance less than 75 %	1 Marks
75 % & less than 80%	2 Marks
80% & less than 85%	3 Marks
85% & less than 90%	4 Marks
90% & above	5 Marks

ASSIGNMENTS OR SEMINARS: (MAX. MARKS 5)

Each student shall be required to do one assignment or one seminar for each Course. Valued assignments shall be returned to the students. The seminars shall be organized by the teacher/teachers in charge of CE and the same shall be assessed by a group of teachers including the teacher/ teachers in charge of that Course. Assignments/Seminars shall be evaluated on the basis of their quality. The teacher shall define the expected quality of an assignment in terms of structure, content, presentation etc. and inform the same to the students. Due weight shall be given for punctuality in submission. Seminar shall be similarly evaluated in terms of structure, content, presentation, interaction etc.

TESTS: (MAX. MARKS 10)

For each Course there shall be one class test during a semester. Valued answer scripts shall be made available to the students for perusal within 10 working days from the date of the test.

ANNOUNCEMENT OF RESULTS OF CE.

The results of the CE shall be displayed within 5 working days from the last day of a semester. Complaints regarding the award of marks for CE if any have to be submitted to the Head of the Department within 3 working days from the display of results of CE. These complaints shall be examined by the Department Committee and shall arrive at a decision, which shall be communicated to the student.

The Statement of marks of the CE of all the students shall be approved by the Department Committee, countersigned by the Principal and forwarded to the Controller of Examinations within 15 working days from the last day of the semester. The University has the right to normalize the CE, if required, for which separate rules shall be framed.

END SEMESTER EVALUATION (ESE):

End Semester Evaluation of all the Courses in all the semesters shall be conducted by the University. The results of the ESE shall be arranged to be published according to the Examination Calendar prescribed by the University Level Monitoring Committee (ULMC), which shall not exceed 45 days from the last day of the examination.

PROJECT/DISSERTATION WORK:

For each First Degree Programme there shall be a Project/Dissertation Work during the sixth semester on a topic related to any issues in Information Technology industry. The Project/Dissertation work can be done either individually or by a group not exceeding five students under the supervision and guidance of the teachers of the Department. The topics shall either be allotted by the supervising teacher or be selected by the students in consultation with the supervising teacher.

The project work shall have the following stages:

- a. Project proposal presentation and literature review - 5th semester
- b. Field work and data analysis - 6th Semester
- c. Report writing and draft report presentation - 6th Semester
- d. Final report submission - 6th Semester

The report shall be printed and spiral bound with around 50 A4 size pages.

The layout is:

Font : Times New Roman

Size : 12

Line Spacing : 1.5

Margin : Left - 1.25; Right-1; Top-1; Bottom-1

The project report should be submitted to the Department at least 15 days before the last working day of the sixth semester. The candidate shall prepare three copies of the report: two copies for submission to the Department and one copy for the student to bring at the time of viva-voce

STRUCTURE OF THE REPORT:

1. Title Pages
2. Certificate of the supervising Teacher with signature
3. Contents
4. List of Tables, Figures, Charts etc
5. Chapter 1- Introduction, Review of literature, Statement of the problem,
Need and Significance of the study Objectives of the study,
Research Methodology, Chapterisation scheme etc
(5-8 pages)
6. Chapter II - Theoretical Back ground (10-15 pages)
7. Chapter III - Data Analysis and Interpretation
8. Chapter IV Summary, Findings and Recommendations
9. Appendix Questionnaire, Specimen copies of forms, other exhibits
10. Bibliography (Books, journal articles, website etc. used for the project work)

EVALUATION

- A Board of two examiners appointed by the University shall evaluate the report.
- There shall be no Continuous Evaluation for the Project work.
- Evaluation of project should involve evaluation of the report with a project based viva-voce.
- A Viva voce based on the project report shall be conducted Individually by the Board of Examiners.
- The total credits for Project work is 3.
- The Maximum Marks for evaluation of the report shall be

100 distributed among the following components,

i)Statement of the problem	-10
ii) Objectives of the study	- 5
iii)Review of literature	-5
iv)Methodology	-15
v)Analysis and Interpretation	-5
vi)Presentation of the report	-10
vii)Findings and suggestions	-10
viii)Bibliography	- 5
ix)Viva-Voce	- 25
Total - 100	

An examiner shall evaluate 10 project reports per day

PROMOTION TO HIGHER SEMESTERS

Students who complete the semester by securing the minimum required attendance and by registering for the End Semester Examination of each semester conducted by the University alone shall be promoted to the next higher semester.

GRADING SYSTEM

Both CE and ESE will be carried out using Indirect Grading system on a 7-point scale.

Consolidation of Grades

The maximum mark for a Course (ESE theory) is 80. The duration of ESE is 3 hours. The marks of CE shall be consolidated by adding the marks of Attendance, Assignment/ Seminar and Test paper respectively for a particular Course.

a	Attendance	5 marks
b	Assignment/Seminar	5 marks
c	Test Paper	10 marks

Total marks for the ESE of Practical is 80. The components of ESE of Practical have to be set by the Chairmen, Boards of Studies, concerned.

The marks for the components of Practical for Continuous Evaluation shall be as shown below

a	Attendance	5 marks
b	Record	5 marks
c	Test	5 marks
d	Performance, Punctuality and Skill	5 marks

The marks of a Course are consolidated by combining the marks of ESE and CE (80+20). A minimum of 40% marks (E Grade) is required for passing a Course with a separate minimum of 40%(E Grade) for Continuous Evaluation and End Semester

EVALUATION

Consolidation of SCPA:

SCPA is obtained by dividing the sum of Credit Points (CP) obtained in a semester by the sum of Credits (C) taken in that semester. After the successful completion of a semester, Semester Credit Point Average (SCPA) of a student in that semester shall be calculated.

For the successful completion of a semester, a student has to score a minimum SCPA of 4.00 (E Grade). However, a student is permitted to move to the next semester irrespective of his / her SCPA.

Consolidation of CCPA: An overall letter Grade (Cumulative Grade) for the whole Programme shall be awarded to the student based on the value of CCPA using a 7-point scale, as given below. It is obtained by dividing the sum of the Credit Points in all the Courses taken by the student, for the entire Programme by the total number of Credit

OVERALL GRADE IN A PROGRAMME

PERCENTAGE OF MARKS	CCPA	LETTER GRADE
90 and above	9 and above	A + Outstanding
80 to < 90	8 to <9	A Excellent
70 to < 80	7 to <8	B Very Good
60 to < 70	6 to <7	C Good
50 to < 60	5 to <6	D Satisfactory
40 to < 50	4 to <5	E Adequate
Below 40	<4	F Failure

The Marks of the Courses taken over and above the minimum prescribed Credits shall not be counted for computing CCPA.

For the successful completion of a Programme and award of the Degree, a student must pass all Courses satisfying the minimum Credit requirement and must score a minimum CCPA of 4.00 or an overall grade of E.

PATTERN OF QUESTIONS

Question Type	Total number of Questions	Number of Question to be answered	Marks for each Questions	Total Marks
Very short answer type(One word to Maximum of 2 sentences)	10	10	1	10
Short answer(Not to exceed one paragraph)	12	8	2	16
Short essay(Not to exceed 120 words)	9	6	4	24
Long essay	4	2	15	30
Total	35	26		80

GRACE MARKS:

Grace marks shall be awarded for Sports/Arts/ NCC/NSS in recognition of meritorious achievements

MARK CUM GRADE SHEET

The University under its seal shall issue to the students a Mark cum Grade Sheet on completion of each semester indicating the details of Courses, Credits, Marks for CE and ESE, Grades, Grade Points, Credit Points and Semester Credit Point Average (SCPA) for each Course.

The Consolidated Mark cum Grade sheet issued at the end of the final semester on completion of the Programme shall contain the details of all Courses taken during the entire Programme including Additional Courses taken over and above the prescribed minimum Credits for obtaining the Degree. However, for the calculation of CCPA, only those Courses in which the student has performed the best with maximum Credit Points alone shall be taken subject to the minimum requirements of Credits for successful completion of a Programme. The Consolidated Mark cum Grade sheet shall indicate the CCPA and CCPA(S)* and the overall letter grade for the whole Programme. The Consolidated Mark cum Grade sheet shall also indicate all the Audit Courses (Zero Credit) successfully completed by the student during the whole Programme.

No student shall be eligible for the award of the Degree unless he/she has successfully completed a Programme of not less than 6 semesters duration and secured at least 180 Credits (excluding Credits for Social Service/Extension Activities) as prescribed by the Regulations.

The Degree to be awarded shall be called Bachelors of Vocation in Information Technology as specified by the Board of Studies and in accordance with the nomenclature specified by the Act and Statutes of the University.

* CCPA(S) is CCPA for specialized subjects. (It is computed in a similar manner but without considering the Language Courses, Foundation Course for Language and Open Course)