www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

DEPARTMENT OF ELECTRICAL/ELECTRONIC AND COMPUTER ENGINEERING

Departmental Vision:

The vision of the Department is to be the best Electrical/Electronics and Computer Engineering Department in any Guyana University with national and International acclaim; a Department where the advancement of engineering and technology is continuously dynamic; and environment-friendly engineers, required in the public and private sectors of the economy are mid-wifed for the rapid industrialization and development of Guyana.

Mission:

The mission is to develop into a national resource that will continue to support the development of Guyana, its economic diversification to make it responsive to the needs of government, industry and society. Thus, the Department will provide.

- State-of-the-art technological and engineering training that prepares the graduates for responsibilities of the workplace.
- Engage in appropriate research activities, and hence, produce the most sought-after engineers by all employers of labour, post graduate school and research institutions.
- Establish industry-institution linkages for mutually beneficial relationships.

Strive to become a Centre of Excellence in Engineering and Technology in the East Caribbean Sub-region where expertise and facilities to accelerate the pace of industrial development can be provided.

Goals and objectives:

The general goals and objectives of engineering training are expected to be in consonance with the realization of national desires with respect to industrial development and high technology attainment. Consequently, the objectives of the engineering programmes are to:

(a) Develop the necessary stills, creative ability, attitudes and expertise consistent with engineering design, communication and construction of engineering works and projects;

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

(b) Adapt and improve on exogenous technology in order to enhance construction techniques and the proper study and use of local raw materials;
(c) Inculcate a responsible attitude towards demands made by the practice of engineering and risk Implication of design and construction;
(d) Inculcate maintenance culture in the use of engineering artifacts;
(e) Install and maintain complex engineering systems to enable them perform optimally in the Nigeria environment;
(f) Be able to exercise original thought, have good professional judgement and be able to take responsibility for the direction of important assignments;
(g) Be self employable, and,
(h) Ensure therefore, that engineering graduates from URG are resourceful, creative, knowledgeable and capable of carrying out the following functions:
    (I) To design engineering projects and supervise their construction;
    (II) To design and make components, machines, equipment and systems;
    (III) To design and develop new products and production techniques in industries;
    (IV) To be good manager of people, money, material, plants and machinery.

Admission Requirements

(1) Candidate seeking 100-level admission into the College leading to the Bachelor of Engineering, (B.Eng) Degree, of the College of Engineering Technology should posses passes at the credit level, or higher, in the Senior Secondary Certificate Examination (SSCE) or General Certificate of Education (GCE) 'O' Level in five subjects, including Mathematics, Physics, Chemistry and English language, plus an acceptance pass in the Universities Matriculation Examinations (UME), where applicable. Equivalent passes in examinations conducted by NECO and NABTEB are accepted.

(2) Candidates seeking Direct Entry admission to 200 level of the programmes should posses GCE 'A' level in Mathematics, Physics and Chemistry or National

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

Diploma from a recognise institution with lower credit, or a University Diploma in a Science or Engineering based course at the Merit level.

Course Credits

All courses for the Bachelor of Engineering degree programmes should be based on the various Departments. Courses taken at the 100 and 200 levels are common to all Departments in the college and are taught College wide by Departments assigned credits. One credit is equivalent to one hour per week per semester of fifteen (15) weeks of lectures or tutorials pr three (3) hours per week of laboratory work per semester.

All students in the programmes should take a minimum load of eighteen (18) credits per semester. A minimum of nine (9) hours per week, (equivalent to three (3) credits), should be spent on laboratory practical.

There should also be one hour of tutorial for every four (4) hours of lecture.

Course Coding: It is proposed that all courses be coded according to Department, level and semester. Thus, the Department codes are as follows:

The level codes are as follows:

Electrical/Electronic Engineering – EEE

Computer Engineering - CPE

100 level	-	1
200 level	-	2
300 level	-	3
400 level	-	4
500 level	-	5

Semester codes are as follow:

First Semester	-	1 or any odd number
Second Semester	-	2 or any even number

For example the full course code for a 200 level course, offered by Electrical Engineering in the first semester, is of the form: EEE 211 where, 2 represents the level, 1 the number assigned by the Department to track the course, and 1 represents the semester. Should the same course be available in the second semester, the course code would be EEE 212 where the '2' at the end of the figure signifies the second semester.

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

Industrial Training:

Engineering education is incomplete without industrial attachment being part of the degree programme. The NC recommends a minimum duration of 40 weeks (one Semester and 3 long vocations) for industrial attachment. The objective of the attachments cannot be over emphasized. It exposes students to a live of working environment where they can relate theory to practice and enhance their communication and human relation skill. Priority is given to those engineering concerns in which maintenance and workshop practice plays a major role because they offer practical exposure that may be available in the Colleges. From the aforementioned, the following practical training scheme: URG Industrial Training Scheme, (IUITS), is carried out by the college:

PRACTICAL TRAINING WORKSHOP PROGRAMME

(a) **Pre-degree IUITS 102**

This is an intensive eight-week in house practical training in the various workshops within the College and around the campus. It commences two weeks after the end of the 100 level Session Examinations for 100 level Engineering students. During this period, the students are exposed to workshop practices that may be encountered in the mechanical, machine, sheet metal, automobile, welding, carpentry, civil and electrical engineering workshops.

(ii) First Industrial Attachment (200 level IUITS)-IUITS 202

This takes place in the long vacation after the end of the 200 level Session examinations, in relevant industries for a period of 12 weeks, with supervisory visits by college staff.

(i) **Second Industrial Attachment (300 Level IUITS) –IUITS 302**

The attachment takes place at the end of the 300 level session examination for 12 weeks of the long vacation. Again, College staffs are exposed to visit the trainees for on-the-spot assessment of their progress

(ii) **Third Industrial Attachment (400 Level IUITS) –IUITS 402**

The attachment, which begins at the end of the first semester examinations, at the 400 level of the programme, is the final exposure to industrial practice before the completion of the Bachelor of Engineering degree program. It last for 24 weeks. It is expected that during the training, the student is exposed to his/her chosen end Degree.

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

(iii) **Grading and Assessment of Industrial Training**

This should be a combination of Continuous Assessment (CA) by the supervising college staff that visit the students on training, and the grading of the logbooks and final written reports each student at the end of each training attachment. The designated officer of the establishment must properly authenticate such logbooks and reports where the students served.

Each week of Industrial Training is assigned one (1) credit. Consequently, the totality of Industrial Training amounts of 56 credits. For student to graduate, such a student must have satisfied 42 IUITS credits and obtained a minimum of 50% in the logbook and final written report.

Graduates Requirements:

To be eligible for the award of the degree of B.Eng Electrical and Electronics or Computer Engineering, a candidate must have satisfies the following conditions:

(a) Completed a minimum of 9 months industrial training 6-months stretch being compulsory.
(b) Passed all compulsory and required courses (including GSTs and ESP).
(c) Brining the minimum total number of units passed to:

Table 1.1 Minimum Number of units Require for Graduation

Level	Electrical and Electronics Engineering	Computer Engineering
100	217	220
200	169	172
300	123	124

For a student to qualify for graduation from any of the programmes, such a student must have passed all the prescribed courses in addition to satisfactorily meeting the Industrial Training requirements, and all General studies courses of the University. Such a student must have also met the minimum number of years and not exceeded the maximum number of years required for graduation. Shown in Table 1.2

Table 1.2: Minimum and Maximum No of years Required for Graduation

Level of entry	Minimum number of years to graduate	Maximum number of years to graduate
100 level 200 level	5 4	8 6

300 level	3	5

The class of the Bachelor of Engineering Degree is determined by the final cumulative grade point average earned by the graduating student.

Cumulative Grade Point Average (CGPA)
The CGPA for each level of course is calculated from a combination of the grade GP assigned to % scored obtained in the examination and the credit assigned to that course. The relationship is aptly displayed in Table 1.3.

Table 2: Calculation of GPA

Courses attempted (a)	Credits attempted (b)	% Scores (c)	Letter grades (d)	Grade point (e)	Grade point credit weighed (f) =b)x(e)	Cumulative grade point average (GPA) (g) =∑(f)/ ∑(b)
EEE 211 EEE 221 EEE 231 EEE 241 EEE 251	3 3 4 2 4	70-100% 60-69% 50-59% 45-49% 0 – 44%	A B C D F	5 4 3 2 0	3x5=15 3x4=12 4x3=12 2x2=4 4x0=0	43 =2.69 16
Total	16			Total	43	

Thus, the student who attempted the 200 level courses shown in Table 1.3, sat for the total 16 credits, and ended up with a GPA of 2.69 for that level. This mode of computation is done for each level per student. The cumulative grade points average, CGPA on which the classification of a graduating student is based, is the sum of the GPA's for each level divided by 5 for a 5- year programme, or 4 for a 4-year program presented in Table 1.4 below.

Table 1.4: CGPA for a Graduating Student Mr. XYZ

MAT NO.	NAME OF STUDENT	LEVEL	UNITS	WP	GPA	CGPA

ENG9900020	XXXX	100 200 300 400 500	48 47 42 26 38	104 112 98 60 114	2.17 2.38 2.33 2.31 3.0	 488 = 2.43 201
		5	201	488		

The degree classification, according to the CGPA recommended by the NUC is presented in Table 4

TABLE 4: DEGREE CLASSIFICATION

	Class of Degree
4.50 – 5.00	First Class
3.50 – 4.49	2nd Class Upper Division
2.40 – 3.49	2nd Class Lower Division
1.50 – 2.39	3rd Class Upper Division

Thus, the candidate, Mr XYZ who finished up with a CGPA of 2.81 has earned a 2nd Class Lower Degree.

COURSES STRUCTURES/DESCRIPTIONS (300-500 LEVELS):

100 Level and 200 Level
Electrical, Electronics and Computer Engineering Students take common courses at 100 and 200 levels with their counterparts from other Departments in the College with very minor exceptions at the 200 level.

300 LEVEL ELECTRICAL/ELECTRONICS ENGINEERING:

1ST			SPREAD	

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

	COURSE CODE	COURSE TITLE	L	T	P	CREDIT UNITS
SEMESTER	ELA 301	Laboratory 1	-	-	6	2
	EEE 311	Electrical Circuit Theory I	2	-	-	3
	EEE 321	Electromechanical Devices and Machines I	2	1	-	3
	EEE 331	Electrical/Electronic Measurement	2	1	-	3
	EEE 351	Electronic Circuit I	2	1	-	3
	MEE 351	Thermodynamics I	2	1	-	2
	EMA 301	Engineering Mathematics III	2	1	-	3
	CPE 311	Basic Computer Engineering	2	1	-	3
	GRE 331	Research methods & Technical writing	1	1	-	2
2ND SEMESTER		**First Semester Total Credit units**				**24**
	ELA 302	Laboratory II	-	-	6	2
	EEE 312	Electrical Circuit Theory II	2	1	-	3
	EEE 322	Electromechanical Devices and Machines II	2	1	-	3
	EEE 332	Electromagnetic Theory I	2	1	-	3
	EMA 352	Digital Electronics	3	-	-	3
	EEE 362	Logic Design and Digital Circuits	2	1	-	3
	EEE 372	Electronics Circuits II	3	-	-	3
	EMA 302	Engineering mathematics IV	3	1	-	4
	IUITS 303	URG Industrial Training Scheme.	1	-	-	1
		Second Semester Total				**25**
		Grand Total Credit Units				**49**

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

300 LEVEL COMPUTER ENGINEERING:

1ST SEMESTER	COURSE CODE	COURSE TITLE	SPREAD			CREDIT UNITS
			L	T	P	
	ELA 301	Engineering Mathematics III	2	1	-	3
	EEE 321	Electromechanical Devices and Machines	2	-	-	3
	EEE 311	Electrical Circuit Theory I	2	-	-	2
	EEE 331	Electrical/Electronic Measurement	2	1	-	2
	GRE 331	Research methods & Technical writing	2	-	-	3
	EEE 351	Electronic Circuit I	2	1	-	3
	CPE 311	Basic Computer Engineering	2	-	-	3
	MEE 351	Thermodynamics I	2	1	-	2
	ELA 301	Electrical Laboratory 1	-	-	2	2
2ND SEM						
		First Semester Total Credit units				**23**

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

E	EMA 302	Engineering mathematics IV	3	1	-	4
S	EEE 312	Electrical Circuit Theory II	2	1	-	3
T	EEE 332	Electromagnetic Waves	2	1	-	3
E	EEE 352	Digital Electronics	2	1	-	3
R	EEE 362	Logic Design and Digital Circuits	3	1	-	3
	CPE 322	Operating Systems	2	1	-	3
	CPE 302	Computer Programming Language	3	1	-	3
	ELA 302	Electrical Laboratory II	1	-	2	2
	IUITS 303	URG University Industrial Training Scheme.	-	-	2	1
		Second Semester Total				**25**
		Grand Total Credit Units				**48**

400 LEVEL ELECTRICAL/ELECTRONICS ENGINEERING:

1ST S		COURSE TITLE	SPREAD L	 T	 P	CREDIT UNITS
E	ELA 401		-	-	6	2
M		Laboratory 111	2	1	-	3
E		Electromechanical Devices and Machines III	2	1	-	3
S		Energy Generation & Utilization	2	1	-	3
T		Basic Control Theory	2	-	-	3
E		Electronic Circuit III	2	1	-	3
R	EEE 411	Telecommunication Principles	2	-	-	3

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

	EEE 421	Engineering Mathematic V	2	1	-	3
	EEE 431	Electrical and Electronic Instrumentation	2	1	-	3
S	EEE 441	Electromagnetic Theory II				
E	EEE 451					
C	EMA 401					
o	EEE 461					
N	EEE 471					
D		**First Semester Total Credit units**				**26**
	IUITS 402	Industrial Training (6 Months)				**6**
		Second Semester Total				**6**
		Grand Total Credit Units				**32**

400 LEVEL COMPUTER ENGINEERING:

1ST S		COURSE TITLE	SPREAD			CREDIT UNITS
			L	T	P	

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

E	EMA 401	Engineering Mathematic V	-	-	6	3
M	EEE 431	Control Theory	2	-	-	3
E	EEE 441	Electronic Circuit II	2	-	-	3
S	EEE 451	Communication Principles	2	-	-	3
T	EEE 461	Instrumentation	2	-	-	3
E	CPE 421	Machine and Assembly Programming	2	-	-	3
R	CPE 431	Switching Theory & Logic Design	2	-	-	2
	CPE 441	Introduction to Computer	2	-	-	3
	CPE 401	Architecture	-	1	-	1
	ELA 401	Microprocessor Lab and Electrical Lab.	-	1	-	1
S						
E		**First Semester Total Credit units**				**25**
C	IUITS 402	Industrial Training (6 Months)				**6**
O		**Second Semester Total**				**6**
N		**Grand Total Credit Units**				**31**
D						

500 LEVEL ELECTRICAL/ELECTRONICS ENGINEERING:

1ST	COURSE CODE	COURSE TITLE	SPREAD			CREDIT UNITS
S			L	T	P	

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

E M E S T E R 2ND S E M E S T E R	GRE 501	Engineering Management I	3	-	-	3
	EEE 511	Electrical Energy Transmission and Distribution	3	-	- -	3
	EEE 521	Power System Engineering	2	1	-	3
	EEE 531	Reliability and maintainability of Electrical and Electronic Equipment	2	1	-	3
	EEE 541	Electronic Circuit III	2	1	-	3
	EEE 551	Telecommunication Principles II	2	1	-	3
	EEE 561	Project I	2	1	9	3
		First Semester Total Credit Units				**21**
	GRE 502	Engineering Management II	3	-	-	3
	EEE 562	Project II	-	-	9	3
	EEE 502	Electrical Services Design	3	-	-	3
	EEE 522	Electronic Design	2	1	-	3
	EEE 542	Telecommunication	2	1	-	3
	EEE 572	Electric Drives and Power Electronics	2	1	-	3
		REQUIRED COURSES				
	EEE 532	Electrical machine Design (Power)	2	1	-	3
	EEE 552	Digital Signal processing (Telecomms)	2	1	-	3
		ELECTIVES				
	EEE 512	Power System, Planning and Design	2	1	-	3
	EEE 582	Control Systems Engineering	2	1	-	3
	CPE 542	Computer networking	2	1	-	3
		Second Semester Total				**21**
		Grand Total Credit Units				**42**

500 LEVEL COMPUTER ENGINEERING:

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

1ST SEMESTER	COURSE CODE	COURSE TITLE	SPREAD L	T	P	CREDIT UNITS
	GRE 501		3	-	-	3
	EEE 531	Engineering Management I	3	-	-	3
	EEE 541	Reliability & Maintainability of Electrical and	2	1	-	3
	CPE 511	Electronics Component Electronics Circuit III	2	1	-	3
	CPE 521	Digital Component & Systems	2	1	-	3
	CPE 531	Microprocessor Fundamentals and	2	1	-	3
	CPE 541	Applications	2	1	9	3
	CPE 551	Software Engineering				
2ND SEMESTER	CPE 561	Data Communications and Network Artificial Intelligence Project I				
		First Semester Total Credit Units				**21**
	GRE 502	Engineering Management II	3	-	-	3
	EEE 522	Industrial Electronics Design	2	1	-	3
	EEE 552	Digital Signal Processing	2	1	-	3
	EEE 572	Electric Drives and Power Electronics	2	1	-	3
	CPE 542	Computer Networking	2	1	-	3
	CPE 552	Simulation and Modelling	2	1	-	3
	CPE 562	Project II	2	-	9	3
		ELECTIVES				
	CPE 532	Hardware System Studies	2	1	-	3
	CPE 512	Computer Graphics	2	1	-	3
	CPE 513	Management Information system	3	-	-	3
	CPE 514	Advanced Programming	2	-	1	3

www.uorguyana.org
info@uorguyana.org
64 Atlantic Ville,
East Coast Demerara,
Guyana, SOuth America

		Second Semester Total				**21**
		Grand Total Credit Units				**48**