

JOINING INSTRUCTIONS

NUST STUDENTS (UNDERGRADUATE SESSION 2010)

INTRODUCTION

General

1. Military College of Signals (MCS) is a constituent College of National University of Sciences and Technology (NUST). Commandant Military College of Signals (MCS) congratulates you on your meritorious selection to the undergraduate programme and welcomes your joining this institution. MCS is one of the premier training institutions of the Pakistan Army and a prestigious place of learning in the field of Telecommunications and Computer Software Engineering. Since its inception in 1947, it has passed through a number of transitions and has kept the pace with the ever expanding field of Electronics, Computers, Telecommunication and Information Security.

Location / Address

2. **Location.** MCS is located on Humayun Road, Rawalpindi Cantonment at a distance of approximately 7 kilometers from Benazir International Airport and 4 kilometers from Rawalpindi Railway Station. The campus comprises college buildings, library, cafeteria, classrooms and laboratories. A boys hostel with a capacity of 100 students is located on Adiala Road, 1 Kilometer away from the College. A small, make shift Female Hostel for 16 lady students has also been established across the Main Gate of the College. A sketch showing the location of MCS and the Cadets Hostel is attached as **Annex A.**

3. **Postal Address.** Military College of Signals, Humayun Road, Rawalpindi Cantt, postal code 46000, email: mcs@nust.edu.pk.

4. **Contact Telephone Numbers**

	<u>Office</u>	<u>Residence</u>	<u>Mobile No</u>
a. Chief Instructor, Engineering Wing	9270283	561-30721	0321-5176531
b. Head of Computer Sciences Department	9270284	561-30256	0321-5109216
c. Head of Electrical Engineering Department	9272948	561-33853	0321-5017066

d. Commanding Officer Cadets Cell	051-4346410	561-30626	0334-5112109
e. Staff Officer (NUST Affair)	9272097	561-32363	0333-5243175
f. Cadets Mess (Jinnah Company)	561-52-3149	-	-
g. Transport Officer	561-52-3003	-	0321-6410006

5. **Reporting on Arrival.** All the students should report at Military College of Signals, Humayun Road Rawalpindi, at 0900 hrs on **20 September 2010.** Reception plan for the new arrivals is attached as **Annex B** to these instructions.

6. **Inability to Join on Due Date.** In case a student is unable to join on the due date because of unavoidable circumstances, he/she must inform the College immediately on address / telephone numbers mentioned at para 3 & 4 respectively.

Organization and Faculty/Staff

7. **College Organization.** MCS is organized into four divisions, Administration Wing, Combat Wing, Engineering Wing and Research & Development Wing. Engineering Wing is responsible for conducting academic programmes under NUST.

8. **Faculty and Staff.** The faculty members are selected on the basis of their professional acumen and skill. The administrative staff ensures smooth administration of the students and the faculty. List of faculty and administrative staff is attached as **Annex C.**

Documentation And Special Instructions

9. **Documents on Arrival.** Parents/Guardians and the Cadets are required to sign two copies of undertaking (Bond) on an affidavit worth Rs.100/- each, as per **Annex D** (specimen attached) duly attested by a Class-1 Magistrate. Two such copies of the bonds (both signed) duly completed in all respects should be handed over to College authorities on arrival.

10. **Filing of Personal Data.** Two copies of personal particulars proforma (specimen attached as per **Annex E**) duly filled /completed be brought by all students.

11. **Documents to be Brought Along.** In addition to the above bond, students are required to bring following documents with them:-

- a. Medical Fitness Certificate (Specimen attached as **Annex F**).
- b. 4 x Passport-size colour Photographs attested by a Class-1 Gazetted Officer.
- c. Original Matric/ FSc Certificate alongwith 4 x Photocopies duly attested by a Class-1 Gazetted Officer.
- d. 4 x Photocopies of National Identity Card or Form B duly attested.
- e. Certificate for not involving in political/Sectarian activities (para 3 Annex D).
- f. 2 x Photocopies of Discharge certificate/Pension Book (Ward of Mil Personnel only).

12. **Admission Conditions.** On completion of above requirements, a student will be admitted to Military College of Signals on provisional basis. The confirmation of admission is subject to verification of original degrees/certificates from the awarding authorities. Students are hereby cautioned that if at any stage, the documents submitted by them are found to be false/forged, he/she will be expelled from the College with forfeiture of all the dues. The student shall also be liable to legal action as deemed necessary by the College authorities.

Payment / Tuition Fee

13. **Initial Payment on Admission**

a. **NUST Students Living in Hostel (Male) – Jinnah Coy**

(1)	Kit Charges	-	8215.00
(2)	College Security (Refundable)	-	2500.00
(3)	Library Security (Refundable)	-	2500.00
(4)	Hostel Security (Refundable)	-	5000.00
(5)	Internet Installation Charges	-	<u>1000.00</u>
	Total	-	<u>19215.00</u>

b. **NUST Students Living in Hostel (Male) – Hired Accn**

(1)	Kit Charges	-	8215.00
(2)	Hostel Security (Refundable)	-	10000.00
(3)	Rent Advance (Rs.5000/- pm)	-	15000.00*
(4)	Internet Installation Charges	-	<u>1000.00</u>
	Total		<u>34215.00</u>

*Application for hostel accommodation is also available on MCS website.

c. **NUST Students Living Out (Male)**

(1)	Kit Charges	-	8215.00
(2)	College Security (Refundable)	-	2500.00
(3)	Library Security (Refundable)	-	<u>2500.00</u>
	Total		<u>13215.00</u>

d. **NUST Student Living in Hostel (Female) – Hired Accn**

(1)	Kit Charges	-	4575.00
(2)	College Security (Refundable)	-	2500.00
(3)	Library Security (Refundable)	-	2500.00
(4)	Hostel Security (Refundable)	-	5000.00
(5)	Internet Installation Charges	-	<u>1000.00</u>
	Total		<u>15575.00</u>

e. **NUST Students Living Out (Female)**

(1)	Kit Charges	-	4575.00
(2)	College Security (Refundable)	-	2500.00
(3)	Library Security (Refundable)	-	<u>2500.00</u>
	Total		<u>9575.00</u>

14. **Tuition Fee.** Tuition fee structure is as under:-

a.	Tuition fee per month	-	Rs.7800.00
b.	Course fee for 4 years (48 months)	-	Rs.374400.00

15. **Duration of Courses.** The total duration of the course is 192 weeks (4 calendar years). The course organization is as follows:-

1 st Semester	-	18 Weeks
Semester Break	-	02 Weeks
2 nd Semester	-	18 Weeks
Semester Break	-	10 Weeks
3 rd Semester	-	18 Weeks
Semester Break	-	02 Weeks
4 th Semester	-	18 Weeks
Semester Break	-	10 Weeks
5 th Semester	-	18 Weeks
Semester Break	-	02 Weeks
6 th Semester	-	18 Weeks
Semester Break	-	10 Weeks
7 th Semester	-	18 Weeks
Semester Break	-	02 Weeks
8 th Semester	-	18 Weeks
<u>Projects/Industrial Visits</u>	-	<u>10 Weeks</u>
Total	-	<u>192 Weeks</u>

16. **Examination and Grading Systems.** Military College of Signals, like other leading institutions, follows Semesters System which is more challenging than the Annual Systems. In this system, the students are expected to study regularly throughout the semester as they have to take a number of tests for each subject in a semester. Students are evaluated on Relative Grading System (cluster based)/Grade Point Average (GPA). In this system, semester GPA is computed on the basis grades obtained in each semester and Cumulative GPA is calculated basing on all the grade points and the completed credits of the course. The passing grade in each subject is 'D' and minimum Cumulative GPA required to qualify the course work is 2.00/4.00. Projects are also graded and grade contributes towards final cumulative GPA. Any student having GPA less than 1.5/4.00 in 1st semester will be withdrawn.

17. **Tuition Fee.** Tuition fee is charged on quarterly basis in advance. Fee for the 1st

quarter is collected by HQ NUST. Rest of the tuition fee is required to be deposited in NUST A/C No.2292-70000003-01 at Habib Bank, Ltd (any branch throughout the country) through Bank Challan Form issued by HQ NUST and delivered through MCS. College copy of the Bank Challan Form is required to be deposited at NUST Branch MCS Rawalpindi. Tuition fee becomes due at the start of each quarter and required to be deposited within the stipulated period given on the fee bill. Penalty as mentioned on the fee bill is imposed for late / delayed payments.

College Facilities

18. Boys Hostel

- a. **Accommodation.** A double storey, 100-students boys hostel with furnished rooms is available. Accommodation will be provided strictly on first come first serve basis. Rest of the students will arrange accommodation at their own. All those allotted hostel accommodation are required to bring along private dress as per **Annex-G**.
- b. **Messing.** Dining facility is available and the boarders enjoy the tranquility and fine meals in the dining room of the mess. All meals are served to in-living students @ Rs. 90/-on daily basis. However these rates are revised from time to time as required.
- c. **Recreation.** College provides best possible recreation facilities to the students in the form of indoor and outdoor games. Facilities for indoor games include Table Tennis, Badminton and well equipped Gymnasium. For outdoor sports, tennis, hockey, football, basketball and cricket grounds are available. TV room and newspaper facility is also available to make the evenings pleasant.
- d. **Valuables.** It is not advisable to bring valuable articles with you to the College. Military College of Signals holds no responsibility for safe custody of any valuables.

19. Female Hostel

- a. **Accommodation.** A small make shift arrangement has been made to provide hostel facilities to accommodate limited number of lady students.

Accommodation is provided strictly on first come first served basis. Rest of the lady students will arrange accommodation at their own.

- b. **Messing.** Dining facility is available and the boarders enjoy the tranquility and fine meals in the mess. All meals are served to in-living students @ Rs. 90/- on daily basis. However these rates are revised from time to time as required.
- c. **Recreation.** Within the premises of hostel, facilities like newspapers, TV lounge and Badminton court are available.
- d. **Valuables.** It is not advisable to bring valuable articles with you to the College. Military College of Signals holds no responsibility for safe custody of any valuables.

20. **College Transport.** Pick and drop facility on payment is provided through hired transport through contractors. Separate application along with home address be provided to Officer Commanding Cadets Cell (OC Cadets Cell) Military College of Signals. However, students provided with hostel accommodation are not permitted to keep/use any type of private/personal transport.

21. **Class Rooms / Lecture Halls.** All class rooms/ lecture halls are air conditioned and adequately furnished.

22. **Library.** MCS has a well stocked library with internet facility. The library houses more than 50,000 books and journals on subjects relating to Electronics, Telecommunications and Computers etc. In addition the college subscribes to over 70 technical journals, periodicals, magazines and newspapers from home and abroad. A brief on library will be included as part of orientation visit on arrival.

23. **Laboratories.** Well equipped and state of the art labs are available for quality engineering education. The labs at MCS stand second to none.

24. **Auditorium.** College auditorium (Nawaz Shaheed Auditorium)/Seminar Hall has seating capacity of 450 personnel. It is used for organizing various activities like movie shows, college functions including convocation, open house and declamation contests etc.

25. **Reproduction Facilities.** Reproduction cell co-located with cafeteria undertakes printing and publishing work with the following facilities available:-
- a. Photocopier
 - b. CD Writer
 - c. Printer
 - d. Miscellaneous Stationery Items
26. **Cafeteria.** Separate student cafeteria for gents / ladies is also available.
27. **Photographer.** Round the clock facility is available in the college.
28. **Internet.** A 24 hours internet service is provided to all the faculty members and students both at campus as well as their residences.
29. **Societies.** There is a perfect blend of academic and co-curricular activities at the college. Co-curricular activities are the land mark of life at MCS. To promote awareness and inculcate sense of responsibility within the students, Telecommunication and Software societies and Alumni Association have made the student life very vibrant. These societies arrange extra curricular activities, conduct short courses, arrange funfairs, concerts, workshops and invite guest speakers. The election process for the appointment of office bearers has given a new dimension to their activities. Alumni association of the college “SIGNALIANZ” helps the students in establishing industrial linkages and provides financial help to the needy students.
30. **Co – Curricular Activities.** A variety of recreational facilities are available including Literary Club, Debating Society, Photography Club and Dramatics Club etc.

DRESS REGULATIONS

31. **Dress Male Students.** All students have to procure dress centrally arranged through Cadets Wing on payment, already mentioned in para 13a (1) above. Detail of

dress is given below:-

a. **Winter Dress**

- (1) NUST blazer (MCS badge). Stripes in the sleeves of blazer according to the course
- (2) White Shirt (full sleeves)
- (3) Trouser worsted dark grey
- (4) Black shoes oxford pattern
- (5) College neck tie
- (6) Black socks
- (7) Name plate (Army Pattern)

b. **Summer Dress**

- (1) White shirt (cotton and polyester mix) half sleeves.
- (2) Light grey trouser (tropical)
- (3) Black shoes oxford pattern
- (4) Black socks
- (5) Name plate (Army Pattern)

32. **Dress Female Students.** All students have to procure dress centrally arranged through Cadets Wing on payment, already mentioned in para 13c (1) above. Detail of dress is as under:-

a. **Winter Dress**

- (1) NUST Blazer (MCS Badge white Shalwar Kameez (Cotton and Polyester Mix) with white Dupatta of green border colours
- (2) Hijab optional (Black)
- (3) Black shoes without heels
- (4) White socks
- (5) Name plate (Army Pattern)

b. **Summer Dress**

- (1) White Shalwar Kameez with full sleeves (cotton and polyester mix)

with white Dupatta of green border colours

- (2) Hijab optional (Black)
- (3) Black shoes without heels.
- (4) White socks
- (5) Name plate (Army Pattern)

CONDUCT OF TRAINING/BRIEFING

33. **Conduct of Training at MCS.** A detailed briefing will be given about the conduct of training, examinations/tests and associated regulations to the students at the start of the course. Subsequently it will be repeated through the course advisors in the class titled as student-tearch interaction (course advisors / disposal).

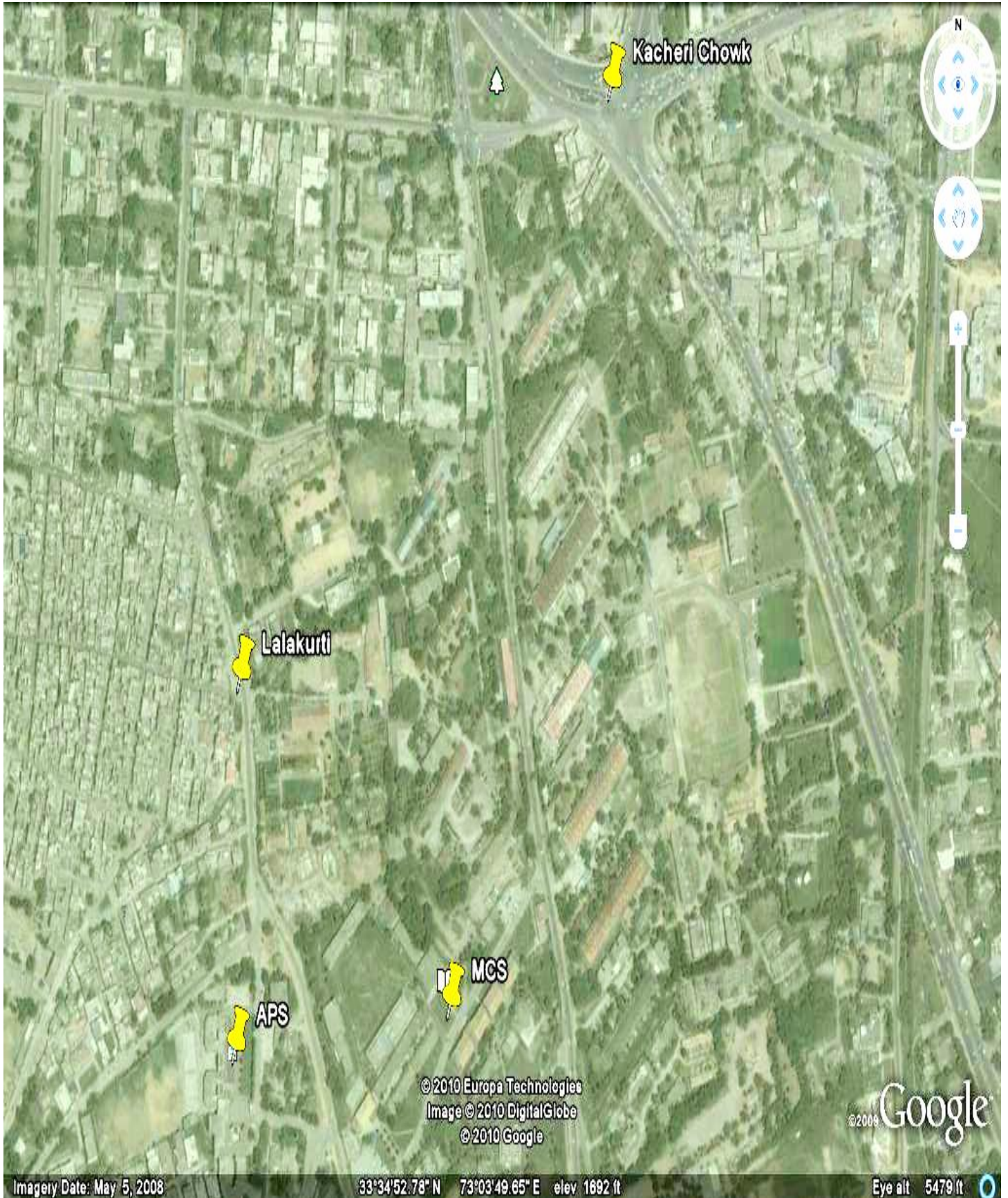
34. **Discipline.** For matters of discipline there is no discrimination between NUST Cadets, Paying Cadets and Technical Cadets. Every individual is required to abide by all instructions contained in this booklet or passed on from time to time through circulars / instructions from college authorities.

35. **Pre-Course Study.** The pre-course syllabus is attached as **Annex H**. Students are expected to fresh up these subjects. Semester wise detail of subjects/credit hours for Software Engineering and Telecommunication Engineering are attached at **Annex J** and **Annex K** respectively.

CONCLUSION

36. The MCS welcomes you to a challenging life of learning, discipline, self-motivation and mission accomplishment. It is hoped that you will find the environments friendly and conducive for learning. The college administration is eagerly waiting for you to join by 20th September 2010. In case of any problems, please do not hesitate to contact the college administration.

MCS GUIDE MAP



RECEPTION PLAN – UG COURSES**20 SEPTEMBER 2010**

S/No	Details	Time	RV
1.	Arrival / Reception	0900-1000	Nawaz Shaheed Auditorium
2.	Briefing about MCS	1000-1015	Nawaz Shaheed Auditorium
3.	Registration, Filling of Forms / Payment of Dues	1015-1100	Nawaz Shaheed Auditorium
4.	Orientation / visit of College	1100-1215	Computer Sciences, Electrical Engineering Departments and Library
5.	Departure for Cadets Hostel (for in-living students)	1215 onward	Cadets Hostel
6.	Issuing of next day programe	1300	NS Auditorium

FACULTY AT MCS

S/No	Designation	Name
1.	Professor	Dr. Ashraf Masood
2.	Associate Professor	Dr. Saeed Murtaza
3.	Associate Professor	Dr. Farooq Ahmed Bhatti
4.	Assistant Professor	Dr. Awais Majeed
5.	Assistant Professor	Dr. Faisal Bashir Hussain
6.	Assistant Professor	Dr. Sajjad Hussain
7.	Assistant Professor	Dr. Imran Ahmed Siddiqi
8.	Assistant Professor	Dr. Sajjad Hussain
9.	Assistant Professor	Dr. Sanam Shehla Rizvi
10.	Assistant Professor	Dr. Hammad Afzal
11.	Assistant Professor	Dr. Seemab Latif
12.	Assistant Professor	Dr. Muhammad Arif Wahla
13.	Assistant Professor	Dr. Fahim Arif
14.	Assistant Professor	Dr. Muhammad Hanif
15.	Assistant Professor	Dr. Imran Tauqeer
16.	Assistant Professor	Dr. Asif Masud
17.	Assistant Professor	Dr. Naveed Iqbal Rao
18.	Assistant Professor	Dr. Adnan Ahmed Khan
19.	Assistant Professor	Dr Abdul Ghafoor
20.	Assistant Professor	Dr. Adnan Rashdi
21.	Assistant Professor	Dr. Adil Masood Sadiqui
22.	Assistant Professor	Engr Raja Iqbal
23.	Assistant Professor	Engr Syed Javed Hussain
24.	Assistant Professor	Engr Fazal Ahmed
25.	Assistant Professor	Engr Zaka Ul Mustafa
26.	Assistant Professor	Engr Imtiaz Ahmed Khokhar
27.	Assistant Professor	Engr Syed Athar Mohsin Zaidi
28.	Assistant Professor	Engr Naveed Sarfraz Khattak
29.	Assistant Professor	Engr Attiq Ahmed
30.	Assistant Professor	Engr Asif Mehmood
31.	Assistant Professor	Muhammad Naeem
32.	Assistant Professor	Engr Syed Zulqarnain Ahmed Gilani
33.	Regular Visiting Faculty	Engr Muhammad Khan Minhas
34.	Regular Visiting Faculty	Umar Farooq
35.	Regular Visiting Faculty	Engr Tariq Hussain Sheikh
36.	Regular Visiting Faculty	Talib Hussain Masood
37.	Regular Visiting Faculty	Engr Muhammad Saleem
38.	Regular Visiting Faculty	Muhammad Akram
39.	Regular Visiting Faculty	Muhammad Bashir Bilal Siddiqi

S/No	Designation	Name
40.	Regular Visiting Faculty	Miss Safia Akram
41.	Lecturer	Engr Muhammad Irshad
42.	Lecturer	Muhammad Zeeshan Zahid
43.	Lecturer	Ahmed Raza Cheema
44.	Lecturer	Engr Miss Tabinda Waheed
45.	Lecturer	Miss Aisha Khalid Khan
46.	Lecturer	Bilal Rauf
47.	Lecturer	Miss Ayesha Naureen
48.	Lecturer	Khurram Shahzad
49.	Lecturer	Obaid Ullah Khalid
50.	Lecturer	Kamran Arif
51.	Lecturer	Safwat Irteza Butt
52.	Lecturer	Rehan Ashraf
53.	Lecturer	Miss Sana Javed
54.	Lecturer	Asad Raza
55.	Lecturer	Rabia Khan
56.	Lecturer	Mir Yasir Umair
57.	Lecturer	Raza Ahmed Bhatti
58.	Lecturer	Muhammad Umar Zulfiqar
59.	Lecturer	Maryam Akhtar Kiani
60.	Lecturer	Shaista Humaira
61.	Lecturer	Beenish Shahzad
62.	Lab Demonstrator	Ashfaq Ahmed
63.	Lab Demonstrator	Aiman Akif
64.	Demonstrator	Kabeer Ahmed
65.	Lab Engineer	Umar Mehmood
66.	Lab Engineer	Umair Nasir
67.	Lab Engineer	Hammad Kabir
68.	Lab Engineer	Intisar Rizwan-i-Haque
69.	Lab Engineer	Saad Islam
70.	Lab Engineer	Ijaz Ahmed
71.	Lab Engineer	Fazullah
72.	Lab Engineer	Shahela Saif
73.	Lab Engineer	Nausheen Majeed
74.	Lab Engineer	Mehreen Sirshar
75.	Lab Engineer	Mian Muhammad Waseem
76.	Lab Engineer	Sajjad Sarwar
77.	Lab Engineer	Muhammad Naeem

COLLEGE ADMINISTRATION

S#	Rank	Name	Designation	Telephone No
1.	Major General	Shahid Maqbool	Commandant MCS	051-561-34151
2.	Brigadier	Umar Farooq	Brigadier Coordination	051-561-30792
3.	Brigadier	Dr. Ashraf Masood	Dean Engineering	051-561-34155
4.	Lieutenant Colonel	Musawwir ur Rehman	Assistant Adjutant & Quarter Master General	051-561-34322
5.	Lieutenant Colonel	Muhammad Jamal Shah	Staff Officer-1 (Exams)	051-561-35443
6.	Lieutenant Colonel	Babar Sultan	General Staff Officer-I (Training)	051-561-33069
7.	Lieutenant Colonel	Muhammad Rafiq	Staff Officer-I (NUST)	051-9272097
8.	Major	Muhammad Ishaq Pervez	Transport Officer	051-561-52-3003
9.	Major	Muhammad Ashiq	General Staff Officer-II (Training)	051-561-33523
10.	Major	Wajid Mehmood Arshad	Adjutant	051-561-33642

SURETY BOND

1. KNOW ALL MEN BY THESE PRESENT THAT I _____ (herein after called the trainee) and surety _____ (herein after called the surety) do hereby bind ourselves and each of us and heirs, executors and administrators to abide by the terms and conditions of NUST after having been selected against “civ student of NUST” seat at Military College of Signals.

2. During studies I (trainee) shall abide by the College discipline and rules, regulations and standing orders/procedures concerned and pay all expenses in due time. Any violation of these will make me (trainee) liable to be expelled from the College which shall be without right of appeal in any court of law. During studies if I (trainee) be expelled by the College on any ground, or deliberately fail will not be allowed to continue studies, I (trainee) will lose my seat in the College and would not be allowed to continue studies in any of the NUST institutions.

3. I (trainee) will abstain from any political activity during my tenure of studies at Military College of Signals. If I (trainee) found guilty of an act which is forbidden by NUST authorities will be liable for expulsion from the institution.

Trainee

Signature _____

Name _____

S/D/O _____

Designation/Status _____

Address _____

Surety (Parents/Guardian)

Signature _____

Name _____

S/D/O _____

Designation/Status _____

Address _____

Signature of the Class-1 Magistrate
(With stamp)

MILITARY COLLEGE OF SIGNALS
PERSONAL PARTICULARS OF NUST CADETS

Note: To be deposited by the civil (NUST) Cadets on joining Military College of Signals Rawalpindi.

1. No _____ (To be allotted by MCS on joining)
2. Name _____
3. National Identity Card No. _____
4. Father's Name: _____
5. Father's Occupation _____
6. Father's Address _____
7. Permanent Home Address: _____
8. Tel No / Cell No / Email Address: _____
9. Institution Attended

S/No	Institution	From	To	Class	Division
10. **Detail of Marks** **Obtained** **Total** **Percentage**
 - a. Matric
 - b. FSc
11. Any distinction/position: _____
12. Games which you can play: _____
13. Participation in any Tournament: _____
14. Membership of any Social/Cultural Club: _____
15. Participation in any competition (Divisional Level & Above) _____
16. Course/Diploma attended (other than Metric & FSc) _____
17. Any other remarks/details: _____

18. Detail of Brothers & Sisters _____

S/No	Name	Age	Marital Status	Address
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a.

b.

c.

19. Relatives in Rawalpindi and Islamabad (Name, Address, Telephone Number and Relationship)

a. _____

b. _____

(Form can also be downloaded from MCS website: (www.mcs.nust.edu.pk)).

MEDICAL FITNESS CERTIFICATE

I, the undersigned hereby certify that _____ S/O
_____ Identity Card No _____ Registration No _____ is
not suffering from any communicable disease and is healthy in all respects. He is also
physically fit to undergo intense physical exercise/ activity.

Stamp

(Signature of Doctor)

BOYS HOSTEL**PRIVATE DRESS AND BEDDING ITEMS (Optional)**

1.	Lounge Suit	-	01
2.	Combination Suit	-	01
3.	Neck Tie	-	03
4.	White Shalwar Kameez	-	02
5.	Waist Coat Closed Collar (Black)	-	01
6.	White Shirts with Sleeves	-	02
7.	White Shirts with Half Sleeves	-	01
8.	Black Socks	-	02 Pairs
9.	Shoe Black (Oxford Pattern)	-	01 Pair
10.	Sleepers (Leather)	-	01 Pair
11.	White shorts with hip pockets of normal Pattern (2" higher than knees)	-	03
12.	PT Shoes/Joggers- White	-	01 Pair
13.	Dressing Gown	-	01
14.	Handkerchief (Plain White)	-	01 Pair
15.	Under Wear	-	04
16.	Mattress	-	01
17.	White bed sheets	-	03
18.	Pillow	-	01
19.	Pillow Covers (White)	-	02
20.	Ja-i-Nimaz	-	01
21.	Shaving Kit	-	01 Set
22.	Hand Bag	-	01
23.	Trunk	-	01
24.	Blanket	-	01
25.	Wrist Watch	-	01
26.	Alarm Clock	-	01
27.	Thermo Flask	-	01
28.	Hockey Stick	-	01
29.	Emergency Light	-	01

PRE COURSE SYLLABUS1. Mathematics (For EE and BESE Students)a. Calculus

(1) Revision of Differentiation. Theorems composite and impellent functions, trigonometric exponential and logarithmic function, inverse trigonometric functions and successive differentiation.

(2) Revision of Integration. Standard formula, algebraic and trigonometric substitution, partial fraction method, integration by parts, definite integrals.

b. Partial Differentiation. Partial differential coefficient, partial differentiation of implicit function, total differential coefficient of a function of two variables, application to small errors. Taylor and Maclaurance series, maxima and minima and points of in flexion, maxima and minima of function of two variables.

c. Complex Numbers. Introduction to complex number. Arranged's diagram modulus, argument of complex number, forms of complex number, algebra of complex number, Demoiver functions of complex numbers.

d. Differential Equations. Order and degree of differential equations, solution of linear differential equation of Ist order by:-

(1) Variable Separation

(2) Reducible by Substitution to variable separable, 2nd order differential equation, employments and particular internals application to relevant engg system, Complex method of obtaining particular solution. D-operator, its properties and application, inverse D-operator, solution of differential equation by D-operator.

e. Fourier Series. Periodic function, Fourier theorem and determination of coefficients, analysis of square, saw tooth and triangular wave forms, analysis of half wave and full wave rectifier, complex from of Fourier analysis, Fourier integral and transform.

- f. **Vectors.** Scalar and vector fields, vector calculus partial derivatives
Differential derivatives and gradient of scalar field. Divergence of a vector field.
Curl of a vector field.

Reference Book. Advanced Engineering Mathematics by Erwin.

2. **Basic Electrical Engineering (For EE and BESE Students)**

- a. **Electro statics.** Coulomb's law and Electric field intensity, Electric flux density, Gauss's theorem, energy and potential, conductors, inductance and capacitance, charge and discharge of capacitor through resistance.
- b. **Electromagnetism.** Ampere's and magnetic field strength, force on a current carrying conductor in a magnetic field, Torque on current carrying in magnetic field.
- c. **Electromagnetic Induction.** Faraday's and Lenz's law, self and mutual inductance, Eddy current, growth and decay of current in an LR and RC oscillatory circuit.
- d. **Fundamentals of Alternating Currents.** Simple AC Generator, average and RMS values, AC circuits containing resistance, inductance and capacitance individually and in combination, phase and power in AC circuits.
- e. **Resonance.** Series and parallel circuits, Selectivity and bandwidth of resonance circuits, voltage and current magnification.
- f. **Coupled Circuits and Transformers.** Conductively and magnetically coupled circuits, transformer operation, losses, equivalent circuits and impedance matching.
- g. **Kirchoff's Laws.** Loop and node equations, use of matrices Grammer's rule, Concept and use of duality network theorems.

3. **Electro-Acoustics (For EE Students)**

- a. **Basic Principles of Sound.** Noise sources in stationary system. Fan noise, Duct system, Noise effects. Sound "attenuators, insertion loss, pressure drop self noise calculation of the sound pressure level in a room from the sound power" level of a source.

- b. **Sound System.** Design philosophy of sound, reinforcing systems.

Reference Books. Electrical Engineering by A.H.Moton.

4. **Electronics (For EE Students)**

- a. **Diode.** Conduction mechanism in semiconductors, distribution and flow of charge carriers in semiconductors. Construction and characteristics of solid-state diodes. Analysis of forward and reverse biased PN junctions, junction capacitance. Voltage controlled diffused resistor piece-wise, linear model for a diode, low frequency applications of diodes (diode circuits).
- b. **Transistors.** Construction and characteristics of bipolar junction transistors, FET, MOSFET, junction transistor static volt-ampere characteristic model and H-parameters. Load line analysis and biasing of transistor amplifiers. Introduction to SCR.
- c. **Basic Amplifier Circuits.** Fundamentals of transistor and the amplifiers, Basic Voltage Amplifiers Circuits, Transformer and direct coupled amplifiers.
- d. **Modulation and Demodulation Circuits.** Amplitude, frequency Mod, PWM, PPM, adpater mod etc.

5. **Applied Physics (For EE & BESE Students)**

- a. **System of Unit.** System of absolute units C.GS absolute electrostatic and magneto-state units, practical units relating between electrical and mechanical units of M.K.S systems, absolute and nationalized system dimensions of electrical quantities.
- b. **Magnetic Properties of Materials.** Material. BH curve, hysteresis magnetic circuit calculations, solenoids, pull of an electromagnet.
- c. **Atomic Structure and Basics of Quantum Mechanics.** Modern theory of atomic structure and its development in stage with simultaneous discussion of concept of quantum mechanics.
- d. **Electron Particles.** Motion of charged particles like electron in electronic and magnetic fields, electro-optics.

- e. **Electron Emissions.** Potential barrier, thermionic emission, emitting materials. Schottky's affect, field emission, secondary emission, photo-electric emission, photo multiplier tubes.
- f. **Conduction Through Gases.** Gaseous discharges, plasma and its properties, junction potential, Hot and cold cathode tubes, gas tubes and their characteristics.

Theory of Electrons in solids.

Ref Books:

- (1) University Physics by Sears and Zemansky.
- (2) Atomic Physics by Tolansky.
- (3) Applied Electronics by Truman Gary.
- (4) Atomic Physics by Rajam.

6. **Computer Science (For BESE Students)**

- a. **Logic Design.** Binary number system, conversion of Binary numbers to Octal, Hexadecimal and Decimal numbers, Complements, Boolean Algebra, Logic gates combinational and sequential logic circuits.
- b. **Programming Languages.** Working knowledge of any of the High level language such as Fortran, C+ or Basic is desired.
- c. **Software Packages.** Basics of word processing, spread sheet, D Base etc.
- d. **Operating System.** Basic knowledge of Windows.
- e. **Computer Hard Ware.** Computer terminology, classes, sub system introduction to PC family, Brief survey of 8, 16 and 32 bit microprocessors, their architecture.
- f. **Ref Books**
- (1) Digital Logic & Design by Morris Mano
 - (2) Relevant introductory books available in local book stores.

SEMESTER WISE BREAKDOWN**(SOFTWARE ENGINEERING)****SEMESTER-1****(19 Credit Hours)**

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-101	ICT Fundamentals	2	1	2	3	5
2.	MTH-132	Calculus	3	0	3	0	3
3.	MTH-314	Linear Algebra	3	0	3	0	3
4.	Phy-184	Applied Physics (Electromagnetism)	3	1	3	3	6
5.	PS-101	Pakistan Studies	2	0	2	0	2
6.	HU-110	Communication & Interpersonal Skills	2	0	2	0	2
7.	ISL-101	Islamic Studies	2	0	2	0	2
Total			17	2	17	6	23

SEMESTER-2**(19 Credit Hours)**

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-335	Object Oriented Programming Paradigm	3	1	3	3	6
2.	MTH-133	Engineering Mathematics	3	0	3	0	3
3.	CE-230	Digital Logic Fundamentals	3	1	3	3	6
4.	HU-300	Engineering Economics	2	0	2	0	2
5.	CSE-271	Software Engineering	3	0	3	0	3
6.	MTH-234	Multivariable Calculus	3	0	3	0	3
Total			17	2	17	6	23

SEMESTER-3
(16 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-331	Data Structure & Algorithm	3	1	3	3	6
2.	CPS-480	Data Base Systems	3	1	3	3	6
4.	EE-280	Basic Electrical Engineering	3	1	3	3	6
5.	CE-420	Computer Org & Architecture	3	1	3	3	6
Total			12	4	12	12	24

SEMESTER-4
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	MTH-331	Numerical Analysis	2	1	2	3	5
2.	CSE-476	Human Computer Interfacing	2	1	2	3	5
3.	MTH-234	Multivariable Calculus	3	0	3	0	3
4.	CSE-474	Soft Design & Architecture	3	1	3	3	6
5	EE-302	Electronic Circuits & Devices	3	1	3	3	6
Total			13	4	13	12	25

SEMESTER-5
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theor y	Lab	
1.	CSE-473	Software Quality Assurance	3	0	3	0	3
2.	CPS-422	Computer Networks	3	1	3	3	6
3.	CPS-410	Operating System	3	1	3	3	6
4.	STT-351	Probability & Statistics	3	0	3	0	3
5.	CSE-478	Software Requirement Engineering	3	0	3	0	3
Total			15	2	15	6	21

SEMESTER-6
(18 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-345	Digital Electronics	3	1	3	3	6
2.	CPS-622	Distributed Computing	3	1	3	3	6
3.	CPS-360	Automata Theory and Formal Languages	3	0	3	0	3
4.	CPS-425	Network Security	3	0	3	0	3
5.	HU-201	Technical Business Writing	2	0	2	0	2
6.	SS-102	Professional Ethics	2	0	2	0	2
Total			16	2	16	6	22

SEMESTER-7
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CSE-471	Software Project Management (Elective)	3	0	3	0	3
2.	EE-481	Digital Image Processing	3	1	3	3	6
3.	CSE-472	Software Construction	3	1	3	3	6
4.	CSE-477	Web Engineering	3	1	3	3	6
5.	CS-499	Project	0	2	0	6	6
Total			12	5	12	15	27

SEMESTER-8
(16 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1	CPS-472	Computer Graphics	3	1	3	3	6
2	EC-201	Engineering Economics	2	0	2	0	2
3	CSE-279	Planning Engineering Project Management	2	0	2	0	2
4	CPS-440	Artificial Intelligence	3	1	3	3	6
5	CPS-499	Project	0	4	0	12	12
Total			10	6	10	18	28

SUMMARY
(SOFTWARE ENGINEERING)

Semester	Subjects	Credits	Contacts
1	7	19	23
2	6	19	23
3	5	16	24
4	5	17	25
5	5	17	21
6	6	18	22
7	5	17	27
8	5	16	28
	44	139	193

SEMESTER WISE BREAKDOWN
(COMPUTER AND NETWORK SECURITY)
SEMESTER-1
(16.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact hrs/week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	ENG-110	Communication & interpersonal Skills	2	0	2	0	2
2.	MTH-132	Calculus	3	0	3	0	3
3.	MTH-314	Linear Algebra	3	0	3	0	3
4.	CPS-231	Intro to Computing & Programming	3	1	3	3	6
5.	Phy-184	Applied Physics (Electromagnetism)	2	0.5	2	2	4
6.	PS-101	Pakistan Studies	2	0	2	0	2
Total			15	1.5	15	5	20

SEMESTER-2
(18 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-335	Object Oriented Programming Paradigm	3	1	3	3	6
2.	MTH-133	Engineering Mathematics	3	0	3	0	3
3.	MTH-134	Discrete Mathematics	2	0	2	0	2
4.	CE-230	Digital Logic Fundamentals	3	1	3	3	6
5.	ISL-101	Islamic Studies	2	0	2	0	2
6.	CSE-271	Software Engineering	3	0	3	0	3
Total			16	2	16	6	22

SEMESTER-3
(16 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-331	Data Structure & Algorithm	3	1	3	3	6
2.	CPS-480	Data Base Systems	3	1	3	3	6
3.	EE-280	Basic Electrical Engineering	3	1	3	3	6
4.	CE-420	Computer Org & Architecture	3	1	3	3	6
Total			12	4	12	12	24

SEMESTER-4
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	MTH-331	Numerical Analysis	2	1	2	3	5
2.	CSE-476	Human Computer Interfacing	2	1	2	3	5
3.	MTH-234	Multivariable Calculus	3	0	3	0	3
4.	CSE-474	Soft Design & Architecture	3	1	3	3	6
5.	EE-302	Electronic Circuits & Devices	3	1	3	3	6
Total			13	4	13	12	25

SEMESTER-5
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CPS-410	Operating Systems	3	1	3	3	6
2.	CPS-422	Computer Networks	3	1	3	3	6
3.	MTH-315	Number Theory	3	0	3	0	3
4.	STT-351	Probability & Statistics	3	0	3	0	3
5.	CSE-478	Software Requirement Engineering	3	0	3	0	3
Total			15	2	15	6	21

SEMESTER-6
(18 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	IS-326	Introduction to Computer Security	3	0	3	0	3
2.	IS-336	Fundamentals of Cryptography	3	0	3	0	3
3.	CPS-360	Automata Theory and Formal Languages	3	0	3	0	3
4.	CPS-425	Network Security	3	0	3	0	3
5.	SS-102	Professional Ethics	2	0	2	0	2
6.	CPS-622	Distributed Computing	3	1	3	3	6
Total			17	1	17	3	20

SEMESTER-7
(16.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1	CSE-475	Software Project Management	3	0	3	0	3
2	IS-417	Computer Forensics	3	1	3	3	6
3	IS-427	Open Source Systems	3	1	3	3	6
4	CSE-477	Web Engineering	3	0.5	3	2	5
5	CS-499	Project	0	2	0	6	6
Total			12	4.5	12	14	26

SEMESTER-8
(15 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	CS-499	Projects	0	4	0	12	12
2.	IS-438	Data Mining	3	1	3	3	6
3.	IS-448	System Incident Handling	3	0	3	0	3
4.	CSE-279	Planning Engineering Project Management	2	0	2	0	2
5.	HU-201	Technical/Business Writing	2	0	2	0	2
Total			10	5	10	15	25

SUMMARY

BESE (COMPUTER AND NETWORK SECURITY)

Semester	Subjects	Credits	Contacts
1	6	16.5	20
2	6	18	22
3	4	16	24
4	5	17	25
5	5	17	21
6	6	18	20
7	5	16.5	26
8	5	15	25
	42	134	183

SEMESTER WISE BREAKDOWN
(ELECTRICAL ENGINEERING)

SEMESTER-1
(18.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	MTH-132	Calculus	3	0	3	0	3
2.	PHY-184	Applied Physics	3	0.5	3	1.5	4.5
3.	CPS-101	ICT Fundamentals (ITC)	2	1	2	3	5
4.	MTH-314	Linear Algebra	3	0	3	0	3
5.	HU-110	Communication and Interpersonal Skills	2	0	2	0	2
6.	HU-102	Islamic Studies	2	0	2	0	2
7.	HU-101	Pakistan Studies	2	0	2	0	2
Total			17	1.5	17	4.5	21.5

SEMESTER-2
(19.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	MTH-234	Multivariable Calculus	3	0	3	0	3
2.	MTH-133	Engineering Mathematics	3	0	3	0	3
3.	CPS-230	Object Oriented Programming Paradigms	3	1	3	3	6
4.	CPS-310	Digital Logic Fundamentals	3	1	3	3	6
5.	EE-200/ CSE-271	DC Circuits Analysis / Software Engineering	3	0.5	3	1.5	4.5
			3	0	3	3	3
6.	HU-300	Engineering Economics	2	0	2	0	2
Total			17	2.5	17	7.5	24.5

SEMESTER-3
(17.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-202	Network Analysis	3	0	3	0	3
2.	EE-201	AC Circuits Analysis	3	0.5	3	1.5	4.5
3.	STT-351	Probability and Statistics	3	0	3	0	3
4.	CPS-331	Numerical Analysis	2	1	2	3	5
5.	EE-300	Electronic Circuits – I	3	1	3	3	6
6.	SVY-100	Surveying and GIS	0	1	0	3	3
Total			14	3.5	14	10.5	24.5

SEMESTER-4
(16.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-302	Electromagnetics – I	3	0	3	0	3
2.	EE-304	Signal and Systems	3	0	3	0	3
3.	EE-305	Electronic Circuits – II	3	0.5	3	1.5	4.5
4.	HU-302	Statistical Quality Control	2	0	2	0	2
5.	CPS-320	Computer Organization and Architecture	3	1	3	3	6
6.	DRW-310	Computer Aided Drawing	0	1	0	3	3
Total			14	2.5	14	7.5	21.5

SEMESTER-5
(18 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-401	Integrated Circuits	3	1	3	3	6
2.	EE-402	Digital Signal Processing	3	1	3	3	6
3.	EE-405	Electromagnetics – II	3	0.5	3	1.5	4.5
4.	EE-404	Analog Communication System	3	0.5	3	1.5	4.5
5.	CPS-422	Computer Networks	3	0	3	0	3
Total			15	3	15	9	24

SEMESTER-6
(17 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-474	Telecommunication Switching Principles	3	0	3	0	3
2.	EE-478	Optical Devices and Communication Systems	3	0	3	0	3
3.	EE-306	Antenna and Wave Prop	3	0.5	3	1.5	4.5
4.	EE-307	Electrical Machines and Controls	3	0.5	3	1.5	4.5
5.	EE-406	Digital Communication Systems	3	1	3	3	6
Total			15	2	15	6	21

SEMESTER-7
(17.5 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	EE-476	Data Encryption and Network Security	3	0.5	3	1.5	4.5
2.	EE-475	Telecommunication Systems	4	0	4	0	4
3.	HU-201	Technical/Business Writing	2	0	2	0	2
4.	EE-400	Control Systems	3	1	3	3	6
5.	EE-473	Communication Systems Planning	1	1	1	3	4
6.	HU-210	Professional Ethics	2	0	2	0	2
Total			15	2.5	15	7.5	22.5

SEMESTER-8
(12 Credit Hours)

S#	Course No	Subjects	Credit Hrs/Week		Contact Hrs/Week		Total Contact Hrs/Week
			Theory	Lab	Theory	Lab	
1.	HU-301	Planning, Engineering/ Project Management	2	0	2	0	2
2.	EE-480	Satellite Communication Systems	2	0	2	0	2
3.	EE-481	Mobile Communication Systems	2	0	2	0	2
4.	EE-499	Projects	0	6	0	18	18
Total			6	6	6	18	24

SUMMARY

Semester	Subjects	Credits	Contacts
1	7	18.5	23.5
2	6	19.5	24.5
3	6	17.5	24.5
4	6	16.5	21.5
5	5	18	24
6	5	17	21
7	6	17.5	22.5
8	4	12	24
	45	136.5	185.5