FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY

(An Autonomous Institution)



B. Tech
Stream-B
ELECTRONICS AND INSTRUMENTATION

Curriculum-2026

Hormis Nagar, Mookkannoor, Angamaly
Kerala - 683 576

Curriculum Structure – Stream B

Electrical Sciences

- **Electronics and Communication Engineering (ECE)**
- **Electronics and Instrumentation Engineering (EIE)**
- **Electrical and Electronics Engineering(EEE)**

1. Course Types

The curriculum is designed to provide a balanced and comprehensive learning experience. The courses are categorized as follows:

1. **Program Core Course (PCC)** – Fundamental courses essential to Electrical Sciences and System Design.
2. **Program Core - Project-Based Learning (PBL)** – Hands-on learning through projects for system development.
3. **Program Elective Courses (PEC)** – Program Specialized courses chosen by students based on interest.
4. **Open Elective Courses/Industry Elective Courses (OEC/IEC)** – Courses from other engineering disciplines or industry-relevant courses.
5. **Humanities and Social Sciences including Management Courses (HMC)** – Ethics, Communication, and Managerial Skills Development.
6. **Humanities and Social Sciences including Management Elective Courses (HME)-** Specialized Courses chosen by students based on interest in Ethics, Communication, and Managerial Skills Development.
7. **Basic Science Courses (BSC)** – Foundational Mathematics, Physics, and Chemistry courses.
8. **Engineering Science Courses (ESC)** – Courses applying in Engineering Principles in Practices.
9. **Program Core Laboratory Courses(PCL) -** Fundamental laboratory courses essential to Electrical Sciences and System Design
10. **Skill Enhancement Courses (SEC)** – Technical and Professional skill enhancement courses.
11. **Seminar (SMR)** – Research based discussions and presentations.
12. **Project (PRJ)** – Capstone projects integrating knowledge in electrical sciences.
13. **Value added Course (VAC) -** Additional courses enhancing domain expertise, including **Minor** (interdisciplinary subjects from other departments) and **Honors** (advanced courses within the student's specialization).
14. **Internship Courses (INC/INM) –** Industry R&D organizations oriented experiential learning

2. Curriculum Design and Structure

- **Separate Curriculum Tables for First & Second Semesters**:
  - The first and second semesters have individual tabular representations.
  - 50% of students can opt for **Engineering Physics/Engineering Chemistry in Semester 1** and **Universal Human Values and Constitution of India/ Life Skills and Professional Ethics,Health & Wellness in Semester 2**, and vice versa.
- **Unified Curriculum Table for Higher Semesters**:
  - From the third to eighth semester, a common tabular format is used for Stream B while retaining discipline-specific subjects.
- **10-Day Induction Program**:
  - Introduces students to academic expectations, ethics, and foundational skill-building.

3. Abbreviations Used

- **L** – Lecture Hours
- **T** – Tutorial Hours
- **P** – Practical/Laboratory Hours
- **R** – Research/Project-Based Learning
- **CIA** – Continuous Internal Assessment
- **ESE**– End Semester Examination
- **Self Study Hour Calculation -** 1.5L+0.5T+0.5P+R

	FIRST SEMESTER- Stream B													
	10 Days Compulsory Induction Program													
Sl. No	**Slot**	**Course Code**	**Course Type**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs. /Week**
					L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	26NBCBS101	BSC	Linear Algebra, Differential Calculus and Laplace Transforms	2	1	0	0	3.5	40	60	3	3
2	B S1 /S 2	26NBNBS102	BSC	Engineering Physics- B	2	0	2	0	4	40	60	3	4
		26ABNBS103		Engineering Chemistry -AB									
3	C	26ABMES101	ESC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	26ABNES102	ESC	Introduction to Electrical & Electronics Engineering (Part1:Electrical Engineering)	2	0	0	0	3	20	30	4	4
				(Part2:Electronics Engineering)	2	0	0	0	3	20	30		
5	E	26ABCES103	ESC	Algorithmic Thinking with Python	2	0	2	0	4	40	60	4	4
6	F	26ABMEL101	ESC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	50	2	2
7	G S1 /S 2	26ABCHM101	HMC	Life Skills, Ethics & Wellness	1	0	1	0	2*	40	60	1	2
		26ABCHM102		Universal Human Values and Constitution of India	2	0	0	0	3*	40	60		
8	S	26NINSE101	SEC	Skill Enhancement Course								1	2
Total									**24.5/ 25.5**			**21**	**25**

	SECOND SEMESTER- Stream B												
Sl. No	**Slot**	**Course Code**	**Course Type**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
					L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	26NBCBS201	BSC	Integral Calculus And Fourier Series	2	1	0	0	3.5	40	60	3	3
2	B S1/S2	26NBNBS102	BSC	Engineering Physics –B	2	0	2	0	4	40	60	3	4
		26ABNBS103		Engineering Chemistry-AB									
3	C	26ABNES201	ESC	Introduction to Computing Systems and Web Design	2	0	2	0	4	40	60	4	4
4	D	26ABNES202	ESC	Programming in C	2	1	0	0	3.5	40	60	3	4
5	E	26NINPC201	PCC	Logic Circuit Design	2	1	0	0	3.5	40	60	3	3
6	F	26ABCHM201	HMC	Professional Communication	1	0	1	0	2	40	60	2	2
7	G S1/S2	26ABCHM101	HMC	Life Skills, Ethics & Wellness	1	0	1	0	2	40	60	1	2
		26ABCHM102		Universal Human Values and Constitution of India	2	0	0	0	3	40	60		
8	H	26ABNEL201	ESC	C Programming Lab	0	0	2	0	1	50	50	2	2
9	S	26NINSE202	SEC	Skill Enhancement Course								1	2
Total									**23.5/ 24.5**			**22**	**26**

	THIRD SEMESTER- Stream B												
Sl. No	Slot	Course Code	Course Type	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
					L	T	P	R		CIA	ESE		
1	A	26NBCBS301	BSC	Calculus of Complex Functions and Fourier Transforms	2	1	0	0	3.5	40	60	3	3
2	B	26NINPC301	PCC	Electronics Devices and Circuits	2	1	0	0	3.5	40	60	3	3
3	C	26NINPC302	PCC	Network Theory	2	1	0	0	3.5	40	60	3	3
4	D	26NINPB303	PBL	Transducers and Measurements	3	0	0	1	5.5	60	40	4	4
5	E	26NBCES301	ESC	Introduction to Artificial Intelligence and Data Science	3	0	0	0	4.5	40	60	3	3
6	F S3/S4	26ABCES302	ESC	Disaster Management and Sustainable Development	2	0	0	0	3	40	60	2	2
		26ABCES303		Design Thinking and Product Development									
7	G	26NINLC301	PCL	Transducers & Measurements Lab	0	0	3	0	1.5	50	50	2	3
8	H	26NINLC302	PCL	Logic Circuit Design Lab	0	0	3	0	1.5	50	50	2	3
9		REMEDIAL											
	M	26NINVM30Q	VAC	MINOR	3	0	0	0	4.5	40	60	4*	3*
10	S	26NINSE303		Skill Enhancement Course								1	2
Total									**26.5/ 31***			**23/27***	**26/29***

Note:

- ***Starting from the third semester, students have the opportunity to enroll in Minor courses. Departments offer a curated set of subjects that students from other disciplines can take as Minor courses to gain interdisciplinary expertise.***
- ***Students who do not opt for Minor or Honors courses will attend remedial classes for selected subjects to strengthen their foundational knowledge and enhance their academic performance. A minimum attendance of 75% in these remedial classes is mandatory to ensure effective learning and subject proficiency. The remedial classes for three subjects will be decided by the Program Assessment Committee, and the additional workload of the teacher will be included in the total workload.***
- ***Starting from the third semester, students have the opportunity to enroll in Minor courses. A basket***

comprising five subjects are offered as Minor Courses.

	FOURTH SEMESTER- Stream B												
Sl. No	**Slot**	**Course Code**	**Course Type**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
					L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	26NBNBS401	BSC	Probability Distributions, Random Process and Numerical Methods	2	1	0	0	3.5	40	60	3	3
2	B	26NINPC401	PCC	Signals and Systems	2	1	0	0	3.5	40	60	3	3
3	C	26NINPC402	PCC	Linear Integrated Circuits	2	1	0	0	3.5	40	60	3	3
4	D	26NINPC403	PCC	Industrial Instrumentation	2	1	0	0	3.5	60	40	3	3
5	E	26NINPB401	PBL	Microcontrollers	3	0	0	1	5.5	40	60	4	4
6	F S3/S4	26ABCES302	ESC	Disaster Management and Sustainable Development	2	0	0	0	3	40	60	2	2
		26ABCES303		Design Thinking and Product Development									
7	G	26NINLC401	PCL	Analog Circuits and Simulation Lab	0	0	3	0	1.5	50	50	2	3
8	H	26NINLC402	PCL	Micro-controllers Lab	0	0	3	0	1.5	50	50	2	3
9			VAC	REMEDIAL									
	M	26NINVM401		MINOR	3	0	0	0	4.5	40	60	4*	3*
	U	26NINVH4Q1		HONORS	3	0	0	0	4.5	40	60		
10	S	26NINSE404	SEC	Skill Enhancement Course								1	2
Total									**25.5/ 34.5***			**23/31***	**26/32***

Note:

- ***Disaster Management and Sustainable Development and Design thinking and Product Development shall be offered in both S3 and S4. Half of the branches in the institution will include Disaster Management and Sustainable Development in Semester 3 (S3) and Design Thinking and Product Development in Semester 4 (S4), while the other half will follow the opposite sequence.***
- ***After completing the fourth semester or fifth semester during semester break, a student shall undergo a minimum of ten days of mandatory internship with industry/ NGO's/ Government organizations/***

Micro/ Small/ Medium enterprises to equip students with the necessary industry exposure. The Central Internship Committee will coordinate and monitor the internship activities.

- ***·Starting from the fourth semester, students may opt to enrol in Honors courses. Three distinct Honors course baskets will be offered, from which a student may choose one basket to pursue. Each Honors basket consists of four carefully curated subjects aimed at providing advanced knowledge and skills in the respective discipline***
- ***Students are not permitted to switch between baskets in different semesters. It is mandatory that once a basket has been chosen in the fourth semester, the subsequent higher level courses included in the same basket must be undertaken in the following semesters.***

FIFTH SEMESTER- Stream B

Sl. No	Slot	Course Code	Course Type	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
					L	T	P	R		CIA	ESE		
1	A	26NINPC501	PCC	Control System	2	1	0	0	3.5	40	60	3	3
2	B	26NINPC502	PCC	Process Dynamics and Control	2	1	0	0	3.5	40	60	3	3
3	C	26NINPC503	PCC	Power Electronics	2	1	0	0	3.5	40	60	3	3
4	D	26NINPB501	PBL	Embedded System & IOT	3	0	0	1	5.5	60	40	4	4
5	E	26NINPE51Q	PEC	PEC-1	3	0	0	0	4.5	40	60	3	3
6	F S5/S6	26ABCHM501	HMC	Engineering Entrepreneurship & IPR	2	0	0	0	3	40	60	3	2
		26ABCHM502		Economics For Engineers	2	0	0	0		40	60		
7	G	26NINLC501	PCL	Power Electronics and Control System Simulation Lab	0	0	3	0	1.5	50	50	2	3
8	H	26NINLC502	PCL	Embedded System& IOT Lab	0	0	3	0	1.5	50	50	2	3
9			VAC	REMEDIAL									
	M	26NINVM501		MINOR	3	0	0	0	4.5	40	60	4*	3*
	U	26NINVH5Q1		HONORS	3	0	0	0	4.5	40	60		
10	S	26NINSE505	SEC	Skill Enhancement Course								1	2
	S_5/ S_6	Industrial Visit(Maximum 5 Days are permitted, Not Exceeding more than 3 Working Days)											
Total									**26.5 /35.5***			**24/32***	**26/32***

Program Elective Courses (PEC-1)

Sl. No:	Course Code	Name of the Subject	Prerequisites(If Any)
1	26NINPE511	Machine Learning	Algorithmic Thinking with Python
2	26NINPE512	Data Structures	Programming in C
3	26NINPE513	Instrumentation for Agriculture	Sensors and Measurements
4	26NINPE514	Introduction to Robotics	Control System
5	26NINPE515	Electric Vehicles and Renewable Technologies	Basic Electrical Engineering

	SIXTH SEMESTER- Steam B												
Sl. No	Slot	Course Code	Course Type	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/ Week
					L	T	P	R		CIA	ESE		
1	A	26NINPC601	PCC	Biomedical Instrumentation	2	1	0	0	3.5	40	60	3	3
2	B	26NINPC602	PCC	Digital Signal Processing	2	1	0	0	3.5	40	60	3	3
3	C	26NINPC603	PCC	Instrumentation System Design	2	1	0	0	3.5	40	60	3	3
4	D	26NINPB601	PBL	Logic and Distributed Control System	3	0	0	1	5.5	60	40	4	4
5	E	26NINPE62Q	PEC	PEC-2	3	0	0	0	4.5	40	60	3	3
6	F S5/S6	26ABCHM501	HMC	Engineering Entrepreneurship & IPR	2	0	0	0	3	40	60	3	2
		26ABCHM502		Economics For Engineers	2	0	0	0	3	40	60		
7	G	26NINLC601	PCL	Process Control &Virtual Instrumentation Lab	0	0	3	0	1.5	50	50	2	3
8	H	26NINPR601	PRJ	Mini Project: Socially Relevant Project	0	0	3	0	1.5	50	50	2	3
9			VAC	REMEDIAL									
	M	26NINVM601		MINOR	3	0	0	0	4.5			3*	3*
	U	26NINVH6Q1		HONORS	3	0	0	0	4.5			**4***	**3***
10	S	26NINSE606		Skill Enhancement Course								1	2
	S5/ S6	Industrial Visit (Maximum 5 Days are permitted, Not Exceeding more than 3 Working Days)											
11		26ABCIN601	INM	Mandatory Internship - Evaluation by a Committee								1	
Total									**26.5/35.5***			**25/32***	**26/32***

Note:

- *Engineering Entrepreneurship & IPR and Engineering Economics shall be offered in both S5 and S6. Half of the branches in the institution will include* ***Engineering Entrepreneurship & IPR*** *in* ***Semester 5 (S5)*** *and* ***Engineering Economics****in****Semester 6 (S6),*** *while the other half will follow the opposite sequence.*

Program Elective Courses (PE-2)			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINPE621	Soft Computing	Introduction to AI & Data Science
2	26NINPE622	Object Oriented Programming	Programming in C
3	26NINPE623	Mechatronics	Control System, Sensors and Measurements
4	26NINPE624	Advanced Control Theory	Control System, Signals and Systems
5	26NINPE625	Optical Instrumentation	Sensors and Measurements

SEVENTH SEMESTER- Stream B

Sl. No	Slot	Course Code	Course Type	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/ Week
					L	T	P	R		CIA	ESE		
1	A	26NINPE73Q	PEC	PE-3 (Internship Students: Self Study/MOOC Approved by the college/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	26NINPE74Q	PEC	PE-4 (Internship Students: Self Study/MOOC Approved by the college/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	C	26NINOE71Q /26NINIE71Q	OE/IE	OE/IEC-1 (Internship Students: Self Study/MOOC Approved by the college /Online Classes)	3	0	0	0	*4.5*	40	60	3	3
4	D	26ABCHE71Q	HME	HME-1 (Internship Students: Self Study/MOOC Approved by the college/Online Classes)	2	0	0	0	3	40	60	1	2
5	S	26NINSM701	SMR	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	26NINPR701/ 26NININ701	PRJ	Major Project Phase-I/Internship	0	0	0	8	8	100	0	4	8
7	R		VAC	REMEDIAL									
	U	26NINVH7Q1		HONORS	3	0	0	0	4.5	40	60	3*	3*
8	S	26NINSE707	SEC	Skill Enhancement Course								1	2
Total									**26/30.5***			**17/20***	**24/27***

Note:

- ***No Grade Points will be awarded for the D slot courses***
- ***Open Electives are courses offered by departments other than the student's own, allowing interdisciplinary learning and broader knowledge acquisition.***
- ***Students who opt for an internship must present a seminar before a committee, which will assess their performance.***

HME-1		
1	26ABCHE711	Organizational Behavior and Business Communication
2	26ABCHE712	Proficiency course in French/ MOOC (B1 level)
3	26ABCHE713	Proficiency Course in German/ MOOC (B1 Level).
4	26ABCHE714	Proficiency Course in Spanish/ MOOC (B1 Level)
5	26ABCHE715	Introduction to Japanese Language and Culture/ MOOC (B1 Level)
6	26ABCHE716	Introduction to Indian Languages and Culture / MOOC

Elective Courses (PE-3)			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINPE731	Deep Learning	Machine Learning
2	26NINPE732	Computer Vision	Digital Signal Processing
3	26NINPE733	Instrumentation and Control in Petrochemical Industries	Process Dynamics and Control
4	26NINPE734	MEMS & NANO Electronics	Engineering Physics, Electronic Devices
5	26NINPE735	VLSI	Logic Circuit Design, Electronic Devices

Elective Courses (PE-4)			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINPE741	Real time Operating System	Embedded Systems / Microcontrollers
2	26NINPE742	Automotive Electronics	Power Electronics
3	26NINPE743	Aerospace Instrumentation	Sensors and Measurements
4	26NINPE744	Data Acquisition and Telemetry	Sensors and Measurements
5	26NINPE745	Total Quality Management	Not Required

OE/ILE-1 Courses			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINOE711	Sensors and Measurements	
2	26NINOE712	Industrial Instrumentation	
3	26NINOE713	Data Acquisition and Telemetry	
4	26NINOE714	Internet of Things	
5	26NINIE711	MEMS & NANO Electronics	

EIGHTH SEMESTER- Stream B

Sl. No	Slot	Course Code	Course Type	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/ Week
					L	T	P	R		CIA	ESE		
1	A	26NINPE85Q	PEC	PE-5 (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	26NINOE82Q/ 26NINIE82Q	OE/ILE	OE/IEC-2 (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	C	26ABCHE71Q	HMC	HME-1 (Internship Students: Self Study/MOOC Approved by the college/Online Classes)	2	0	0	0	3	40	60	1	2
4	P	26NINPR801/ 26NINPJ801/ 26NININ801	PRJ/INC	Major Project- Phase-II/ Major Project / Internship	0	0	0	8	8	100	0	6	8
Total									**20**			**13**	**16**

Elective Courses (PE-5)

Sl. No:	Course Code	Name of the Subject	Prerequisites(If Any)
1	26NINPE501	Industry 4.0 & IIOT	Embedded Systems & IoT
2	26NINPE502	Digital Control System	Control System, Signals and Systems
3	26NINPE503	Analytic Instrumentation	Sensors and Measurements
4	26NINPE504	Power Plant Instrumentation	Industrial Instrumentation
5	26NINPE505	Industrial Robotics	Control System, Introduction to Robotics

OE/ILE-2 Courses

Sl. No:	Course Code	Name of the Subject	Prerequisites(If Any)
1	26NINOE201	Process Control	
2	26NINOE202	Instrumentation for Agriculture	
3	26NINOE203	Biomedical Instrumentation	
4	26NINOE203	Instrumentation and Control in Petrochemical Industries	
5	26NINOE205	Power Plant Instrumentation	

Minor Courses - Basket 1

Sl. No:	Course Code	Name of the Subject	Prerequisites(If Any)
1	26NINVM401	Sensors and Measurements	
2	26NINVM501	Industrial Instrumentation	
3	26NINVM601	Process Control	
4	26NINVM701	Instrumentation in Process Industries	
5	26NINVM801	Biomedical Instrumentation	

Honors Courses - Basket-1			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINVH411	Digital System Design	
2	26NINVH512	CMOS IC Design	
3	26NINVH 613	Analog IC Design	
4	26NINVH 714	Edge Computing Systems	
5	26NINVH815	Edge Computing for Industrial Automation	

Honors Courses- Basket-2			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINVH421	Medical Robotics	
2	26NINVH522	Building Automation	
3	26NINVH 623	Advanced Automation and AI Powered Analytics	
4	26NINVH 724	Smart Manufacturing	
5	26NINVH825	Cyber security for Industrial Automation	

Honors Courses- Basket-3			
Sl. No:	**Course Code**	**Name of the Subject**	**Prerequisites(If Any)**
1	26NINVH431	IoT for Smart Cities	
2	26NINVH532	Automation for Electric Vehicles	
3	26NINVH 633	Wearable Devices	
4	26NINVH 734	Autonomous Mobile Robots	
5	26NINVH835	Sustainability and Energy Efficiency	

Credit Distribution Overview

The credit allocation across S1-S8 semesters is structured based on different course types, as detailed below.

Semester	*BSC*	*ESC*	*HMC/ HME*	*SEC*	*PCC + PCL*	*PBL*	*PEC*	*OEC/ IEC*	*SMR + PRJ/ INC*	*INM*	*Total Credits Semester wise*
S1	6	13	1	1	-	-	-	-	-	-	**21**
S2	6	9	3	1	3	-	-	-	-	-	**22**
S3	3	5	-	1	10	4	-	-	-	-	**23**
S4	3	2	-	1	13	4	-	-	-	-	**23**
S5	-	-	3	1	13	4	3	-	-	-	**24**
S6	-	-	3	1	11	4	3	-	2	1	**25**
S7	-	-	1	1	-	-	6	3	6	-	**17**
S8	-	-	1	-	-	-	3	3	6	-	**13**
Total-Type wise /Semester wise	**18**	**29**	**12**	**7**	**50**	**16**	**15**	**6**	**14**	**1**	**168**
Additional Credits											
Minor Courses	Minor courses are offered from the third to the sixth semester. (4+4+4+3=15 Credits)										15
Honor Courses	Honors courses are offered from the fourth to the seventh semester. (4+4+4+3=15 Credits)										15
Activity Points Credits	NSS, NCC, NSO (National Sports Organization) /Arts/Sports/Games/Union/Club Activities - 50 Points										**1**
	English Proficiency Certification (TOFEL, IELTS, BEC etc) /Aptitude Proficiency Certification (GRE, CAT, GMAT etc)/Valid Gate Score/Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities/Journal Publication, Patents, Start-Up/Skilling Certificates (Approved by the College) - 50 Points										**1**
TOTAL CREDITS- 190											

***75 Points/group for B. Tech Lateral Entry Students**

***A minimum of 100 Activity points are to be acquired for obtaining the 2 Activity Credits required in the curriculum.**

Dr. Jacob Thomas V
Principal
FISAT

Dr. Archana R
Member Secretary
FISAT