Sanjay Ghodawat University, Kolhapur
Established as a State Private University under Govt. of Maharashtra Act no. XL dated 3rd May 2017
Empowering Lives Globally !

Sanjay Ghodawat University
Kolhapur

School of Engineering & Technology

Department of Artificial Intelligence & Machine Learning

M. Tech. Artificial Intelligence & Data Science

Syllabus
(Programme Structure and Course Contents)

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester III: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSPC301	MOOC I	3	-	-	3	-	-	3
PDSPC302	MOOC II	3	-	-	3	-	-	3
PDSPR301	Dissertation Phase I	-	-	-	-	6	-	6
PDSOT301	Industry Internship	-	-	-	-	8	-	8
Total		**6**	**-**	**-**	**06**	**14**	**-**	**20**

Th: Theory, Pr: Practical, Tu: Tutorial

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Semester III: Evaluation Scheme

Course Code	Course Name	*Theory Marks*					*Practical Marks*		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSPC301	MOOC I	-	-	-	-	50	25	-	75
PDSPC302	MOOC II	-	-	-	-	50	25	-	75
PDSPR301	Dissertation Phase I	-	-	-	-	-	100	50	150
PDSOT301	Industry Internship	-	-	-	-	-	150	50	200

FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, SEE - Semester End Examination

OR

Programme Structure for M. Tech. Artificial Intelligence & Data Science

Second Year Semester III: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSRP301	Dissertation Phase I – Research	-	-	-	-	20	-	20
	Total	**-**	**-**	**-**	**-**	**20**	**-**	**20**

Th: Theory, Pr: Practical, Tu: Tutorial

Programme Structure for M. Tech. Artificial Intelligence & Data Science

Second Year Semester III: Evaluation Scheme

Course Code	Course Name	*Theory Marks*					*Practical Marks*		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSRP301	Dissertation Phase I – Research	-	-	-	-	-	350	150	500

FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, SEE - Semester End Examination

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSPR401	Dissertation Phase II		-	-	-	20	-	20
	Total	**-**	**-**	**-**	**-**	**20**	**-**	**20**

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Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Evaluation Scheme

Course Code	Course Name	*Theory Marks*					*Practical Marks*		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSPR401	Dissertation Phase II					-	350	150	500

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Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSRP401	Dissertation Phase II – Research		-	-	-	20	-	20
	Total	**-**	**-**	**-**	**-**	**20**	**-**	**20**

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Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Evaluation Scheme

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		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSRP401	Dissertation Phase II - Research					-	350	150	500

FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, SEE - Semester End Examination

Mrs.Shweta Shete	**Dr. Mahesh P. Gaikwad**	**Dr. Raja Krishnamoorthy**	**Dr. Vivek Kulkarni**
BOS, Member Secretary	**BOS, Chairman HOD, AIML**	**Associate Dean**	**Dean,Sci. & Technology**

Track I

Course Code	Course Name	Teaching Scheme(Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Practical	Tutorial
PDSPC301	MOOC I	-	-	-	03	-	-

Evaluation Scheme

Course Code	Course Name	Evaluation Scheme(In Semester)					End Semester Exam(ESE)		
		T1	T2	FET	Total	Min pass	Marks	Min pass	Total (Marks)
PDSPC301	MOOC I		-	-	-	-	-	-	Certification

Course Outcomes: after the end of this course students will able to

CO1:	Obtain certificates for courses is to make students employable in the industry
CO2:	Pursue a suitable higher education programme
CO3:	Explain continuous and open learning, roughly in that order of preference

Course Contents

1. NPTEL began the initiative of offering certification to students for courses. The process of certification is as follows. Student enroll at least one course for 12 weeks available on MOOC
2. Subject Matter Experts (SME - faculty from IITs or partner institutes with input from industry) create recorded video contents for courses
3. The course is uploaded on the portal and opened for enrollments, which is free
4. Every week, about 3 hrs of video contents is released along with an assignment, which is evaluated and provides the student with a score
5. Teaching Assistants (TAs) and the faculty members support the discussion forum – answering questions and clearing doubts
6. If someone wants to get a certificate from the IITs/IISc after doing the course, he/she should register for the in-person proctored certification exam that is conducted in about 100 cities across India in collaboration with an exam partner. The certification exam is not free but has a nominal fee of Rs 1000
7. Final score=25% assignment score + 75% exam score. To be eligible for a certificate, the learner should have scored >=40% final score. E- verifiable certificates are made available on nptel.ac.in/noc and hard

copies are also dispatched to the candidates

8. These certificates are envisioned for use in credit transfer to universities or for making the student more employable or for enhancing his growth in his current place of work.

Course Code	Course Name	Teaching Scheme(Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Practical	Tutorial
PDSPC302	MOOC II	-	-	-	03	-	-

Evaluation Scheme

Course Code	Course Name	Evaluation Scheme(In Semester)					End Semester Exam(ESE)		
		T1	T2	FET	Total	Min pass	Marks	Min pass	Total (Marks)
PDSPC302	MOOC II		-	-	-	-	-	-	Certification

Course Outcomes: after the end of this course students will able to

CO1:	Obtain certificates for courses is to make students employable in the industry
CO2:	Pursue a suitable higher education programme
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Course Contents

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Course Code	Course Name	Teaching Scheme (Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Project/ Internship	Tutorial
PDSPR301	Dissertation Phase I	-	-	-	-	06	-

Evaluation Scheme

Course Code	Course Name	In Semester Evaluation		End Semester Exam (OE/POE)		
		Term work	Min pass	Marks	Min pass	Total (Marks)
PDSPR301	Dissertation Phase I	100	40%	50	40%	50

Course Outcomes: after the end of this course students will able to

CO1:	Explain 'real' working environment and get acquainted with the organization structure, business operations and administrative functions
CO2:	Apply knowledge on hands-on experience in the students' related field so that they can relate and reinforce what has been taught at the university
CO3:	Promote cooperation and to develop synergetic collaboration between industry and the university in promoting a knowledgeable society
CO4:	Set the stage for future recruitment by potential employers

Guidelines

1. A student is expected to carry out intensive literature survey/ identification of a major issue or problem in case of industry projects with observations and discussions in the area of interest specific to the domain in consultation with the dissertation supervisor and industry co- supervisor. The objectives and scope of the dissertation will be expected at a higher level
2. A student is required to submit the dissertation synopsis duly signed by supervisor and co- supervisor to the M. Tech Co- coordinator of the department who schedules the synopsis presentation seminar in the DPC (Departmental Program Committee).
3. Based on the report and the presentation, the DPC will give approval to the dissertation/ give suggestions/

suggest changes/modifications, additional scope, etc. specific to make dissertation to come to the expected level of PG requirement. The student will incorporate the suggestions and resubmit the same for approval.

4. The final copy of the synopsis with approval seal will be issued to the student, supervisor and the co-supervisor of the company which becomes the guiding document for the dissertation
5. Followed by approval of the synopsis, this phase aims at completing at least 40 % of the dissertation work specified in the synopsis. Phase II evaluation consists of a progress review based on the efforts put in by the student to

6. carry out the work and results obtained thereof to seek suggestions and improvements and to ascertain that the student is going in the right direction
7. This phase consists of both the In- semester evaluation by the supervisor and DPC and the end semester evaluation (consisting of presentation followed by demonstration) by a panel of examiners appointed by the COE of the university based on the panel of experts approved by BOS submitted to the COE

Course Code	Course Name	Teaching Scheme (Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Project/ Internship	Tutorial
PDSOT301	Industry Internship	-	-	-	-	08	-

Evaluation Scheme

Course Code	Course Name	In Semester Evaluation		End Semester Exam (OE/POE)		
		Term work	Min pass	Marks	Min pass	Total (Marks)
PDSOT301	Industry Internship	150	40%	50	40%	200

1. Industry Internship Program (IIP-II)

Sanjay Ghodawat University place high focus on the interaction with industries to give them adequate exposure to the practicing aspects of theoretical knowledge they learn in classroom. Moving a step ahead, in order to enhance the students experience with world of work, we are introducing industry internship with project after a through consultation with industry persons, academicians as a part of the major curricular reforms in the choice based credit system (CBCS).

Choice Based for students at Semester VIII for full semester (16 weeks) and pre-work at semester VII (Preparation).This track aims at giving students hands on experience with the world of work which imbibes in them the skills and competencies required to make them competent graduates for employment as per the expectation of the industry. It is a semester long (16 Weeks) course where the students are expected to work as interns and carry out the individual project assigned to them by the company. The students learning progress is monitored by both industry person concerned and the institutional Faculty assigned.

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- Internship training in the industry for full semester.

2. CRITERIA FOR LISTING OF COMPANIES

1. It should be a medium or large scale industry having the functional departments and facilities to design develop and manufacture the products or offer services and potential to offer challenging projects.
2. Company should provide minimum 2-3 internship assignments along with projects and extend facilities to students the on the job training (OJT) as well as access to data & information and guidance to complete the assigned project.
3. Should be able to keep record of attendance and provide a mentor to monitor the project
   And help the students to sort out problem/ issues.
4. Students who are eligible as per criteria and get the internship with their own contacts can
5. also be considered subjected to approval of the company by the University for Internship.

3 OUTCOME EXPECTED AT THE END OF IIP

After the successful completion of the IIP-2, the student should be able to

1. Understand the functioning of the company in the terms of inputs, transformation process and the outputs (products and services)
2. Develop an attitude to adjust with the company culture, work norms, code of conduct.
3. Understand and follow the safety norms, Code of conduct.
4. Demonstrate the ability to observe, analyze and document the details as per the industry practices.
5. Understand the processes, systems and procedures and to relate to the theoretical concepts that is being studied.
6. Improve the leadership abilities, communication.
7. Demonstrate project management and finance and cost management skills

4 INTERNSHIP MONITORING

Each student is assigned a faculty mentor by the program department who monitors the progress of both the internship and project and helps the student to sort out any issues/ problems faced by the students. The faculty is scheduled to make five visits during the internship

1	At the beginning of the program for orienting students to the company.	Prior to the program or during First week of program
2	Finalization of project proposal	During 4th week
3	Mid of the program (to review program)	Between 8th and 9th Week

4	Final progress review	During 15th week
5.	At the end of the internship for evaluation	During16 the week

Note: Apart from these scheduled visits, the faculty on request of students/company will visit in case of any issue related to the internship /project.

5 WORK DIARY

Each student is provided with a diary which contains details regarding internship, do's and don'ts and evaluation scheme. Students is required to write the dairy regularly and get it signed by the industry guide periodically during the visit the faculty assigned to the student should be able to go through the dairy to access the work done and write the remarks/ instruction. At the end of the internship, the duly completed dairy to be submitted to the department.

6 EVALUATION OF INTERNSHIP:

The assessment of the internship will be done jointly by the industry and the faculty assigned to the students. The tentative scheme of assessment will be

1.	Punctuality, behavior and following code of conduct (to be assessed by the company personal)	20%
2.	Initiative, observation and interest in learning new things (faculty in charge)	20%
3.	Familiarization with specific Department/shop/function assigned to student (to be assessed by the company personal)	20%
4.	Final evaluation based on presentation of work, internship report (jointly by the company personnel and examiner appointed by institute & faculty guide.	40%

Minimum 40% is mandatory for successful completion of internship or else the extension will be given to make the student to come up to the expectation.

Track II

Course Code	Course Name	Teaching Scheme (Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Project/ Internship	Tutorial
PDSRP301	Dissertation Phase I – Research	-	-	-	-	20	-

Evaluation Scheme

Course Code	Course Name	In Semester Evaluation		End Semester Exam (OE/POE)		
		Term work	Min pass	Marks	Min pass	Total (Marks)
PDSRP301	Dissertation Phase I – Research	350	40%	150	40%	500

Course Outcomes: after the end of this course students will able to

CO1:	Explain 'real' working environment and get acquainted with the organization structure, business operations and administrative functions
CO2:	Apply knowledge on hands-on experience in the students' related field so that they can relate and reinforce what has been taught at the university
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3. Based on the report and the presentation, the DPC will give approval to the dissertation/ give suggestions/ suggest changes/modifications, additional scope, etc. specific to make dissertation to come to the expected level of PG requirement. The student will incorporate the suggestions and resubmit the same for approval.
4. The final copy of the synopsis with approval seal will be issued to the student, supervisor and the co-supervisor of the company which becomes the guiding document for the dissertation
5. Followed by approval of the synopsis, this phase aims at completing at least 40 % of the dissertation work specified in the synopsis. Phase II evaluation consists of a progress review based on the efforts put in by the student to

6. carry out the work and results obtained thereof to seek suggestions and improvements and to ascertain that the student is going in the right direction
7. This phase consists of both the In- semester evaluation by the supervisor and DPC and the end semester evaluation (consisting of presentation followed by demonstration) by a panel of examiners appointed by the COE of the university based on the panel of experts approved by BOS submitted to the COE

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSPR401	Dissertation Phase II		-	-	-	20	-	20
	Total	**-**	**-**	**-**	**-**	**20**	**-**	**20**

Th: Theory, Pr: Practical, Tu: Tutorial

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Evaluation Scheme

Course Code	Course Name	*Theory Marks*					*Practical Marks*		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSPR401	Dissertation Phase II					-	350	150	500

FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, SEE - Semester End Examination

OR

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
PDSRP401	Dissertation Phase II – Research		-	-	-	20	-	20
	Total	**-**	**-**	**-**	**-**	**20**	**-**	**20**

Th: Theory, Pr: Practical, Tu: Tutorial

Programme Structure for M. Tech. Artificial Intelligence & Data Science
Second Year Semester IV: Evaluation Scheme

Course Code	Course Name	*Theory Marks*					*Practical Marks*		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
PDSRP401	Dissertation Phase II - Research					-	350	150	500

FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, SEE - Semester End Examination

TRACK I

Course Code	Course Name	Teaching Scheme (Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Project/ Internship	Tutorial
PDSPR401	Dissertation Phase II	-	-	-	-	20	-

Evaluation Scheme

Course Code	Course Name	In Semester Evaluation		End Semester Exam (OE/POE)		
		Term work	Min pass	Marks	Min pass	Total (Marks)
PDSPR401	Dissertation Phase II	350	40%	150	40%	500

Guidelines

1. This stage marks the final progress review which indicates the completion of all the defined phases of the dissertation satisfactorily on the periodic progress reviews by supervisor and co- supervisor
2. A student is required to prepare the draft dissertation report as per the format of the university and with approval of supervisor and co- supervisor submit the same to the PG program coordinator of department
3. The Program coordinator will schedule the presentation of student (Pre- submission) before the DPGC members once the student has completed all the academic requirements for the prescribed program
4. Based on the recommendation of DPC, the dissertation is processed further. Viva-Voce examination is to be scheduled preferably with the same external expert appointed for the Dissertation Phase II by COE
5. The successful completion of the Viva- voce, the panel of examiners recommends the candidate as successfully completed and submits the evaluation in the sealed envelope
6. Participate and present a paper in a reputed national / international conference organized by the premium institutions / professional bodies. It is recommended to participate and publish in conferences whose proceedings are published by IEEE, Elsevier Springer, Materials Today or any other reputed conferences
7. The evaluation of the dissertation work of a student shall be carried out in four phases: First and third phase being evaluated for ISE by Department Post Graduate Committee (DPC) while second and fourth phase by DPGC for ISE and by a panel of examiners for ESE
8. A panel of examiners for ESE shall consist of Chairman (who shall be one of the DPC members and shall monitor the process as per norms), an Internal Examiner (who shall be the Guide) and an External Examiner (who shall be a subject expert from outside the institute

TRACK II

Course Code	Course Name	Teaching Scheme (Hr/week)			Credits Assigned		
		Theory	Practical	Tutorial	Theory	Project/ Internship	Tutorial
PDSRP401	Dissertation Phase II - Research	-	-	-	-	20	-

Evaluation Scheme

Course Code	Course Name	In Semester Evaluation		End Semester Exam (OE/POE)		
		Term work	Min pass	Marks	Min pass	Total (Marks)
PDSRP401	Dissertation Phase II - Research	350	40%	150	40%	500

Guidelines

1. This stage marks the final progress review which indicates the completion of all the defined phases of the dissertation satisfactorily on the periodic progress reviews by supervisor and co- supervisor
2. A student is required to prepare the draft dissertation report as per the format of the university and with approval of supervisor and co- supervisor submit the same to the PG program coordinator of department
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6. Participate and present a paper in a reputed national / international conference organized by the premium institutions / professional bodies. It is recommended to participate and publish in conferences whose proceedings are published by IEEE, Elsevier Springer, Materials Today or any other reputed conferences
7. The evaluation of the dissertation work of a student shall be carried out in four phases: First and third phase being evaluated for ISE by Department Post Graduate Committee (DPC) while second and fourth phase by DPGC for ISE and by a panel of examiners for ESE
8. A panel of examiners for ESE shall consist of Chairman (who shall be one of the DPC members and shall monitor the process as per norms), an Internal Examiner (who shall be the Guide) and an External Examiner (who shall be a subject expert from outside the institute.