

National Occupational Standards



Satellite Data Analysis for Crop Management

Unit Code: AGR/N1051

Version: 1.0

NSQF Level: 4.5

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Description

This OS unit is about collating, evaluating and analyzing the satellite data for making informed decision for efficient crop management practices.

Scope

The scope covers the following :

- Access and collate data
- Evaluate data
- Analyse and interpret data for crop monitoring

Elements and Performance Criteria

Access and collate data

To be competent, the user/individual on the job must be able to:

- PC1.** Assess the relevant sources and download the data satellite images
- PC2.** Apply the appropriate preprocessing steps to enhance the quality and resolution of the images
- PC3.** Ensure data collected is from relevant sources
- PC4.** Monitor appropriateness of data and record during collection
- PC5.** Review information using appropriate methods and technologies
- PC6.** Store data by appropriate electronic means
- PC7.** Ensure the satellite data is updated on regular basis

Evaluate data

To be competent, the user/individual on the job must be able to:

- PC8.** Organise and review data
- PC9.** Seek clarification and assistance where data is unclear or difficult to interpret
- PC10.** Obtain and review additional data as required

Analyse and interpret data

To be competent, the user/individual on the job must be able to:

- PC11.** Extract the spectral indices that are relevant for crop monitoring
- PC12.** Analyse spectral indices using appropriate statistical and analytical techniques to identify trends, anomalies, and correlations
- PC13.** Generate maps and charts to visualize the spatial and temporal patterns of crop growth, health, and stress
- PC14.** Interpret the results and provide recommendations for crop health monitoring and management, such as irrigation, fertilization, pest control, Yield & growth stage, etc.
- PC15.** Evaluate the accuracy and reliability of satellite data analysis results
- PC16.** Document and report findings based on the analysis and interpretation of the data
- PC17.** Communicate the satellite data analysis results and recommendations to relevant stakeholders
- PC18.** Obtain feedback and comments on suitability and sufficiency of findings

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PC19. Retrieve data for reference as required

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** sensitive data collection, access and storage techniques
- KU2.** Satellite data collection techniques and procedures
- KU3.** data recording and evaluation techniques
- KU4.** data storage and retrieval methods
- KU5.** data storage and retrieval methods
- KU6.** data reporting and presentation formats
- KU7.** methods to collect and analyse data, relevant to the enterprise
- KU8.** significance, validity and reliability for recommendations
- KU9.** Various spectral indices of crop monitoring

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** make work-related notes
- GS2.** read the relevant literature to get the latest updates and information about new technologies
- GS3.** communicate professionally with clients and co-workers as per the business code of conduct
- GS4.** communicate professionally with clients and co-workers as per the business code of conduct
- GS5.** plan and schedule tasks to ensure timely completion
- GS6.** identify possible disruptions to work and take preventive measures
- GS7.** apply domain knowledge and experience to suggest appropriate solutions to customers
- GS8.** take quick decisions in case of any emergencies/ accidents

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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Access and collate data</i> | 5 | 5 | - | 10 |
| PC1. Assess the relevant sources and download the data satellite images | - | - | - | - |
| PC2. Apply the appropriate preprocessing steps to enhance the quality and resolution of the images | - | - | - | - |
| PC3. Ensure data collected is from relevant sources | - | - | - | - |
| PC4. Monitor appropriateness of data and record during collection | - | - | - | - |
| PC5. Review information using appropriate methods and technologies | - | - | - | - |
| PC6. Store data by appropriate electronic means | - | - | - | - |
| PC7. Ensure the satellite data is updated on regular basis | - | - | - | - |
| <i>Evaluate data</i> | 10 | 10 | - | 10 |
| PC8. Organise and review data | - | - | - | - |
| PC9. Seek clarification and assistance where data is unclear or difficult to interpret | - | - | - | - |
| PC10. Obtain and review additional data as required | - | - | - | - |
| <i>Analyse and interpret data</i> | 20 | 15 | - | 15 |
| PC11. Extract the spectral indices that are relevant for crop monitoring | - | - | - | - |
| PC12. Analyse spectral indices using appropriate statistical and analytical techniques to identify trends, anomalies, and correlations | - | - | - | - |
| PC13. Generate maps and charts to visualize the spatial and temporal patterns of crop growth, health, and stress | - | - | - | - |

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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC14. Interpret the results and provide recommendations for crop health monitoring and management, such as irrigation, fertilization, pest control, Yield & growth stage, etc. | - | - | - | - |
| PC15. Evaluate the accuracy and reliability of satellite data analysis results | - | - | - | - |
| PC16. Document and report findings based on the analysis and interpretation of the data | - | - | - | - |
| PC17. Communicate the satellite data analysis results and recommendations to relevant stakeholders | - | - | - | - |
| PC18. Obtain feedback and comments on suitability and sufficiency of findings | - | - | - | - |
| PC19. Retrieve data for reference as required | - | - | - | - |
| NOS Total | 35 | 30 | - | 35 |

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National Occupational Standards (NOS) Parameters

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| NOS Code | AGR/N1051 |
| NOS Name | Satellite Data Analysis for Crop Management |
| Sector | Agriculture |
| Sub-Sector | |
| Occupation | Precision Farming |
| NSQF Level | 4.5 |
| Credits | 1.25 |
| Minimum Educational Qualification & Experience | <p>Completed 1st year of UG (UG Certificate) (or equivalent) OR Completed 3 year diploma after 10th (in Agriculture/Horticulture/Forestry/Agriculture Engineering/Veterinary Sciences/Animal Husbandry/Diary Technology) OR Completed 2nd year diploma after 12th (in Agriculture/Horticulture/Forestry/Agriculture Engineering/Veterinary Sciences/Animal Husbandry/Diary Technology) OR 12th grade Pass (or equivalent) OR 10th grade pass OR Previous relevant Qualification of NSQF Level (4) OR Previous relevant Qualification of NSQF Level (3.5) with 3 Years of experience relevant experience in Agriculture and allied sectors</p> |
| Version | 1.0 |
| Last Reviewed Date | 30/04/2024 |
| Next Review Date | 30/04/2027 |
| NSQC Clearance Date | 30/04/2024 |
| Reference code on NQR | NG-4.5-AG-02545-2024-V1-ASCI |
| NQR Version | 1.0 |



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| CCN Category | 1 |
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